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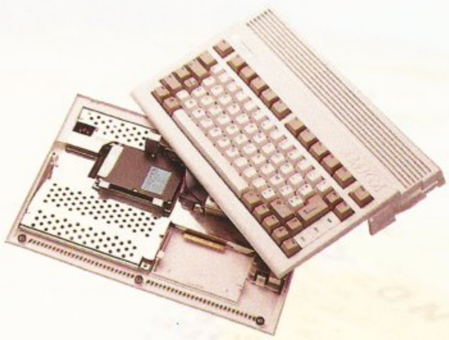
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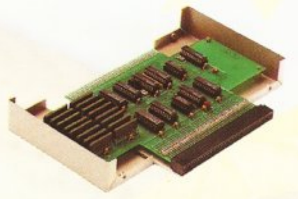
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AMIGA SHOPPER AT A GLANCE GUIDE

To help you find what you want quickly and easily, this is a cross-referenced list of all the products and subjects covered in this month's *Amiga Shopper*. The subjects covered in Amiga Answers are detailed on page 45; the many PD programs covered on page 146 are listed there. The page numbers given are for the first page of the article in which the product is mentioned.

Are there any products or subjects you'd like us to take a look at? Well, just drop a line to:

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WELCOME

Despite last month's somewhat surprising news that Commodore had decided to cease production of the A500 and concentrate on a new range represented by the entry-level A600, there's still no news on what might fill the gap between that machine and the A3000. Commodore has always refused to speculate on new machines before they're launched – even to the point where the first you hear about them is someone ringing in to say that they've just bought one in Dixons or wherever! But they will go so far as to intimate one is on the way and it seems pretty certain, talking to developers, it's a replacement for the A2000.

If you look at the letters pages this issue you'll soon see what the majority of readers think about the decision. Throughout my replies I've tried to stress that I personally believe all is not doom and gloom. Neither Commodore, its developers nor third party manufacturers and publishers are likely to dump a machine range that's sold 1.2 million units in the UK alone. That the A500 is no longer the state of the art is unquestionable – it's just that its replacement leaves a lot to be desired.



Commodore would have been much better off delaying the decision to cease production of the A500 until a new machine with a faster processor had been brought to market. That way it could have saved a considerable amount of face. As it is, it has lost credibility.

So, in this big meanwhile, what's a poor A500 owner to do? Hang on in there! Buy the new chip set so you're assured of future software compatibility, wait for someone to release an adaptor which'll let you hook up forthcoming A600 peripherals... and relax!

Andy Storer

Editor

PUBLIC DOMAIN WORLD

HARD DRIVING

There are thousands of Amiga programs which are available for little more than the price of a disk. And many more which allow you to try the software free before you buy. Each month in Public Domain World we examine the best of these programs and explain how to get hold of them.

This month our resident PD sampler, Ian Wrigley, scans through his latest batch to focus on *SID 2.0* the great hard disk manager and samples a whole bunch of new fonts. Public Domain World or...

cor baby that's nearly free...

as we call it, starts on page 141

AMIGA ANSWERS

13 PAGES DEVOTED EXCLUSIVELY TO ANSWERING YOUR QUESTIONS

Every month in Amiga Answers our panel of experts answer more genuine reader questions than any other Amiga magazine. And for beginners our easy Expert Tips will help you get to grips with your Amiga, and understand the other features in this month's issue.

We answer questions every month on Workbench • The CLI • Comms • Programming • DTP • Video • Business software and more.

THE ANSWERS START ON PAGE 47

FOR A FULL LIST OF CONTENTS, TURN THE PAGE

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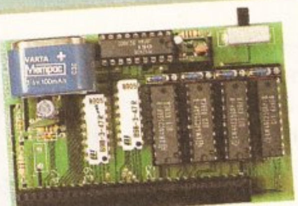
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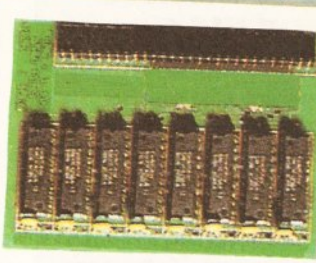
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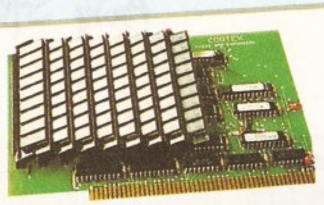
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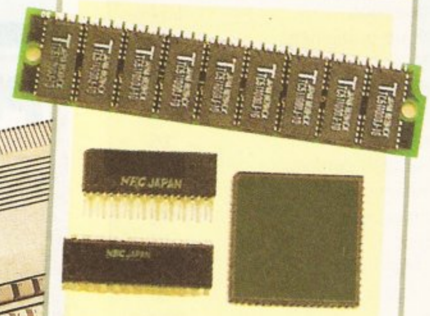
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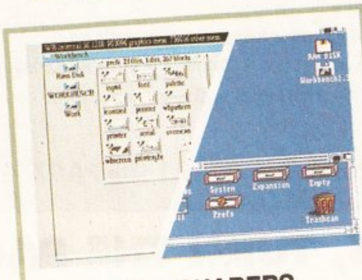


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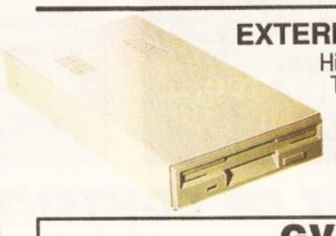
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So how about winning another year's free subscription then chaps? – This month all we want you to do is send us the name of the actor who the girlie, who starred in the Hollywood movie referred to in these pages, fell in love with in that film. You got it? Then just send it in to: 'I go into a sweat just thinking about her in that chiffon dress', Amiga Shopper, 30, Monmouth St, Bath, BA1 2BW. First out the bag wins 12 free issues .
Oh, and last ish's winner was NP Wilson – well done NP – yep it was Tony Hart's *Vision On.*



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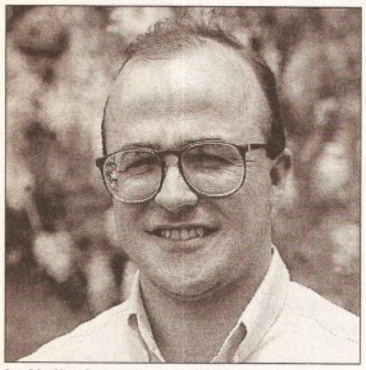
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NEW BOSS FOR COMMODORE



Is Kelly Sumner set to take Steve Franklin's place as the managing director of Commodore UK?

Kelly Sumner is expected to become the new MD of Commodore UK.

According to industry rumours and as reported in the trade paper *CTW*, Sumner is to take over the post that Steve Franklin has filled for the last five years. Franklin is to take a management role with Commodore's CDTV project.

We spoke to Kelly Sumner, but he would offer no comment on the rumours. An announcement regarding the change is expected to be made at the end of June. Next month's *Amiga Shopper* will carry an in-depth interview with the new MD.

COMMODORE COUP AT MULTIMEDIA AWARDS

Three multimedia titles running on Commodore machines won awards at the British Interactive Multimedia Association Awards this year.

The Vistrain police training system, first reported in issue 12, was winner in the Productivity category. Developed by the National Computing Centre and the Scottish Police College, it uses a Commodore PC and Amiga 2000 with genlock to teach police officers how to control crowds.

The Consumer gold award went to Cloudscan's CDTV *Karaoke Hits One*, while Eurotalk's CDTV title *Learn French With Asterix* was winner of the European category and second in the Education section.

The awards bode well for Commodore's multimedia hopes, despite the public's current lack of enthusiasm for CDTV.

To counter the lack of interest, the company has released the Multimedia Pack, a bundle consisting of a CDTV, a keyboard, mouse and disk drive. Essentially an A500 with a CD-ROM, it sells for £599.

TAKEOVER RUMOURS CAUSE COMMODORE SHARE PRICE FLUCTUATIONS

NINTENDO TO BUY OUT COMMODORE?

Console giant Nintendo is to make a takeover bid for Commodore International, it has been rumoured on the New York Stock Exchange.

The rumours began late in March, when a prominent analyst described Commodore's stock as 'the single best value in the computer industry'. At the time, Commodore's share price was quoted at $14 3/8. The analyst predicted the company's share would be at $25 by this time next year. The price of Commodore's shares immediately began to rise following the speculation.

Commodore executives were unavailable for comment, and a spokesperson for Nintendo of America denied the speculation. The rumour had not specified whether it was Nintendo of America or its parent company Nintendo of Japan which was to make the bid, so speculation continued.

Industry sources in Japan told *Amiga Shopper* that Commodore directors had met with Nintendo executives at Chicago's recent consumer electronics show and were only weeks away from signing on the dotted line.

By the close of business on 26 March, Commodore's share price had risen $1 3/8 to $15 3/4, while the share prices of computer companies such as IBM, Hewlett Packard and Compaq were falling.

The takeover would offer both companies benefits. Commodore would gain Nintendo's immense marketing power and a huge cash injection which could, conceivably, be plowed into further research and development. Nintendo, already in a position of near-dominance of the console market, would gain the best possible position in the home computer market without having to develop its own line of machines. The Amiga market would almost certainly burgeon, creating much more interest from third party hard and software developers. Perhaps the acclaimed *Mario Brothers* game would finally make an appearance on the Amiga.

Nintendo is certainly in an acquisitive mood at the moment. It has recently paid $75 million for the ownership of the Seattle Mariners football team.



Could Mario, the famous computer games character, soon be making his appearance on the Amiga?

There has still been no official comment from either Commodore or Nintendo.

If there is any truth to it, the facts will be revealed in the next two months or so. It would be impractical for the two companies to undergo large scale change afterwards, during the much busier sales period of Autumn. *Amiga Shopper* will keep you posted on any further developments.

AID FOR C PROGRAMMERS

An answer to the C programmer's prayers comes in the form of the *Amiga C Encyclopedia*.

The encyclopedia consists of six manuals contained on 12 disks, and is compiled by the Amiga C Club, based in Sweden.

The information contained on the first ten disks is widely available in the public domain, but the last two are only available by registering with the club.

In total the encyclopedia contains 175 fully executable examples along with source code. All are compatible with Workbench 1.3 and Workbench 2, and follow Commodore's programming guidelines.

Subjects covered are the basics of C and the Amiga, using Intuition, using graphics, accessing the operating system, using devices and using sound. Snippets likely to interest coders are explanations on sprites and BOBs, 3D routines and creating copper lists.

In addition to the encyclopedia, registration with the club offers programmers many other benefits.

Anders Bjerin, the club's organiser, offers to digitise members's pictures in colour, as well as sampling sound effects. He also undertakes to help members with their C coding problems by answering questions, giving advice and helping during the debugging stage.

The Amiga C Club has been in existence for two years, and currently has 150 registered members. Registration costs £45, for which members will receive the complete *Amiga C Encyclopedia*. If you already have the first ten disks of the encyclopedia, then registration is £30. Anders requests that you don't send him cheques.

Anders Bjerin can be contacted at: Datra, Amiga C Club, Anders Bjerin, Tulevagen 22, 181 41 Lidingo, Sweden.

IT'S A SIM

Famous computer game *SimCity* is being used to test artificial intelligence software used in urban planning.

Scientists from the University of Chicago are using the game from California-based Maxis to put their AI system through its paces.

HISOFT AND KUMA AGREE

HiSoft has become the manufacturer and promoter of Kuma's line of office application packages following an agreement between the two companies.

HiSoft, well known for its popular range of software development tools, will be taking over all of Kuma's business oriented software. Existing users of Kuma software will be given technical support from HiSoft. The company will continue the development and enhancement of Kuma's packages.

The handing over of its software leaves Kuma free to concentrate on publishing its expanding range of technical books. HiSoft ☎ 0525 718181. Kuma ☎ 0734 844335.

PRINTER PROMO

OKI is offering buyers of its LED page printer a selection of free gifts in an effort to sell more units during the quiet summer period.

The OL810 uses Light Emitting Diode technology to produce laser quality output with less moving parts and, in theory, greater reliability and efficiency.

Buyers of the printer before 30 September can choose one of four free gifts or buy an OKI portable phone for £99 (it normally costs £289). The gifts on offer are: an Olympus Superzoom camera; a Sony Personal CD Player; an OKI car phone; and a dual bin upgrade for the printer itself.

The OL810 costs £1,499. OKI ☎ 0753 531292.

COLOUR SCANNER GIVES AMIGA ADDED DTP CREDENCE

NEW COLOUR SCANNER

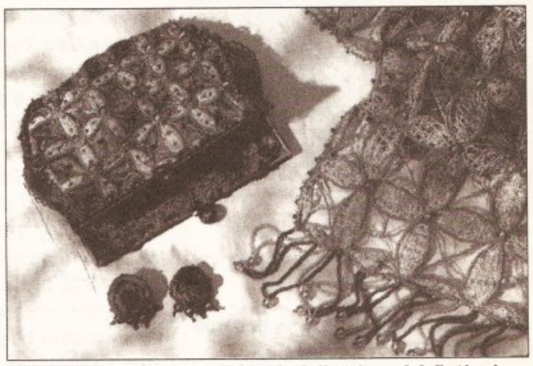
A flatbed full colour scanner for the Amiga has been released by Epson.

The Epson GT-6000 is an A4 scanner that plugs into the Amiga's parallel port and will scan documents at a resolution of up to 600 dots per inch in up to 16 million colours.

Software to use the scanner has been created by ASDG, maker of the *Art Department* image processing software.

The scanning controller software comes in two forms. It can either be integrated into *Art Department* as a new module, or used as a stand-alone program. One of the big advantages of the program is that it can save scans direct to disk, so that scans can be taken by users without huge quantities of memory.

The release of the Epson scanner and ASDG's software takes the Amiga one step closer to acceptance as a serious machine for desktop publishing. Commented Keith Howell of HB Marketing: "It has opened up a new price point for full colour A4 scanning. The nearest competitive product is considerably more expensive."



Excellent results from Epson's full colour A4 flatbed scanner. Sorry you can't see the colour

Epson ☎ 442 61144. ASDG ☎ 0101 608 2736585. The scanner plus ASDG's software is being sold for a total of £1303.80 by HB Marketing ☎ 0753 686000.

Look out for a full review of the scanner in next month's issue.

AMIGA IN INDIAN STORM

Canadian-based Integrated Solutions has used the Amiga as the centre of an interactive presentation system, initially used to re-create the atmosphere of an Indian encampment.

The Interaction System debuts at Wanuskewin Heritage Park, Canada, where it will be used to create a soundscape that helps to 'convey the intimate spiritual connection this culture feels towards the land'.

The system is made up of an Amiga running ARexx, Geodesic Publications' *AirLink* and The Blue Ribbon SoundWorks' *Bars&Pipes Professional*. It is connected to 24 speakers concealed throughout the park and a lighting board to produce changes in daylight and storm effects.

Motion sensors are connected to the Amiga so that it can randomly choose a 16-bit digital sound sample to play through any particular speaker when a visitor approaches. The overall volume of the sound is also varied depending on the number of visitors in the park at any one time.

The most spectacular effect created by the Interaction System is a storm, for which it uses both visual and audio techniques, including high-powered sub-woofer speakers to shake the floor. Each storm is different by virtue of a random number generator, although always following a natural progression.

Integrated Solutions can be contacted on ☎ 0101 306 5652061.

NEW TONES FROM ZONE

Zone is to distribute Dr T's brand new *Boom Box* program.

Boom Box is a program for the Amiga that simulates a ghetto blaster and enables the user to trigger samples in real time à la rap or house mixes. As well as supplied samples, *Boom Box* will accept samples created with other packages. A price has yet to be confirmed, but it is expected to be in the region of £35.

Zone is also selling Dr T's *Composer Quest*, a musical title for Commodore's CDTV. The program contains information on music from 1600 to the present day, including colour screens and 60 musical performances. Biographies of composers can be called up, as can definitions of musical terminology. A trivia quiz is also included. *Composer Quest* costs £69.

The generic editor/librarian *XOR* has been updated to contain 150 profiles. It can be used with the KCS sequencer to enable real-time editing and recording of sound profiles. Some of the new profiles included in the latest version are for the Boss SE50 effects unit, the Wavestation A/D, the Wavestation EX and the Roland R8 drum machine. Existing owners of *XOR* can obtain the update from Zone for the price of postage and packing. The product itself retails at £219, although users of Zone's products can buy it for £159.

Zone intends to run two seminars during August and September. Fixed dates or prices have yet to be announced, although one seminar will be for beginners while the other will be for existing users of the KCS sequencer.

Zone ☎ 071 738 5444. Dr T's Music Software ☎ 0101 617 4551454.

DIAMOND SHARES IT OUT

The Computer dealer Diamond is hoping to float itself on the Stock Exchange and issue shares to the public.

This move follows a suggestion for a merger by a technical company already listed on the Stock Exchange. Since Diamond will be the majority share holder, the resulting company will be called Diamond Computer Systems PLC.

Diamond recently payed a seven figure sum to take over the beleaguered Microbyte dealer chain.

FISHY VIRUS ALERT

A new virus has been discovered on disk 622 of the Fred Fish public domain library.

The disk contains two versions of *Challenger*, a quiz game. The English version is safe, but the German version when run will copy a trojan bomb to either the user's hard disk or Workbench system disk. It is believed that the virus was created and distributed by the author of *Challenger* himself. No current virus checkers will spot the infection.

Its effect is to print up a message on 24 July each year. The computer is unusable on this day.

If you have any worries about this virus, contact the Virus Research Centre ☎ 0942 895320.

••• STOP PRESS •••

FMG CRASHES

Commodore's official repair centre FMG has ceased trading.

The company, which repaired all of Commodore's machines under warranty, ceased trading at nine o'clock 17 June.

Commodore is currently hoping to be able to carry out repairs itself. If you have a faulty machine under warranty, call Commodore Customer Services ☎ 0908 368222.

A spokeswoman for Commodore could make no comment on the status of machines already at FMG.

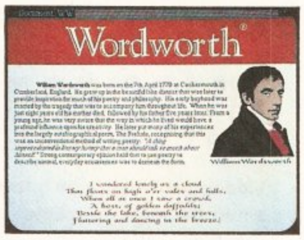
Wordworth

a writer's dream

v1·1

The graphical nature of Wordworth® makes producing documents faster and easier. The WYSIWYG display shows exactly how your printed document will look, different fonts, styles and sizes, headers and footers, graphics and so on.

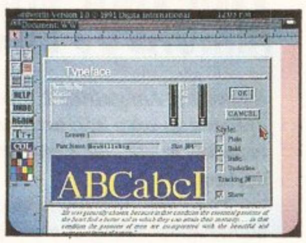
Commands are grouped under a series of pull-down menus, accessible either by the mouse or keyboard. Frequently used commands have on-screen icons, including Help, should you need it.



Experience the look and feel of the new and exciting WB2 (even if you use WB1.3). Each document is a separate multi-tasking window, which means you could for example, print one document while editing another.

Digita's® innovative *Human Interface Protocol*™ is incorporated setting a new standard in speed, style and elegance. "It *HIP*™ system is intuitive and a pleasure to use." – thank you Amiga Shopper, it's nice to be appreciated.

Graphics have always been the Amiga's strong point. Now it's better than ever. Pictures from Deluxe Paint can be placed in a document, and then sized, scaled and dragged (text automatically reformats around the image).



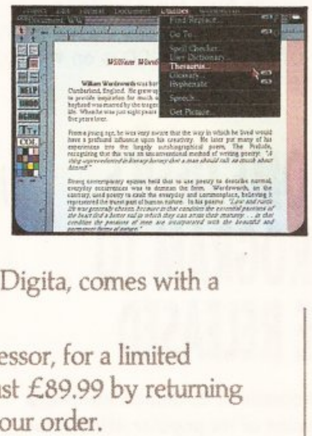
Wordworth's enhanced fonts will give you the very best printed quality. You can also print special symbols, such as boxes, arrows and so on. Better still, you can mix graphics, Wordworth's enhanced fonts, Amiga fonts, Colorfonts and your printer's own internal fonts, all on the same page. There's even a driver for Postscript printers.

You needn't worry about your existing information – Wordworth will let you open documents from most word processors, including Kindwords, Protext and Wordperfect (you can also mailmerge with Superbase).

When Amiga Format said "a new word processor that will give the rest of the world a run for its money" they weren't joking.

Wordworth is written in the UK by Digita. Which means you'll be using an English Collins spelling checker and thesaurus, and you'll know where to come for professional support.

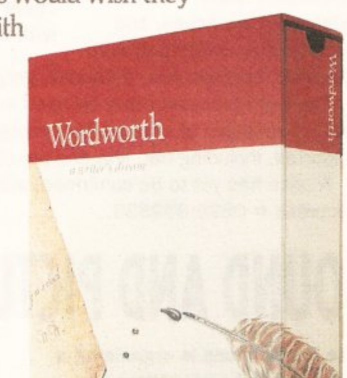
The only way to really appreciate Wordworth is to use it. Phone 0395 270273 for more information or, write to Digita, FREEPOST, Exmouth EX8 2YZ.



Wordworth costs £129.99, which includes VAT, postage and packing; and when purchased from Digita, comes with a 7 day money-back guarantee.

If you already own a word processor, for a limited period only, you can trade-up for just £89.99 by returning your original disks to Digita with your order.

Summing up, Amiga Shopper said: "Pounds-per-feature no other Amiga word processor comes close. Wordworth is what every owner of Kindwords would wish they had." Dreams become reality with Wordworth.



Machine support
Written specifically for the Amiga
Fully supports WB V1.3 and V2.00
All medium or high resolution modes (mono and colour)
Requires 1MB of memory

DIGITA® INTERNATIONAL

software thats right™

Wordworth is available from John Menzies, Virgin, W H Smith and all good computer retailers or to the trade through Columbus, Gem, HB Marketing, IBD, Lazer, Leisuresoft, Precision and SDL.

Digita International Ltd Black Horse House Exmouth EX8 1JL ENGLAND Tel 0395 270273 Fax 0395 268893

ICD ROM SWITCHER

ICD has released KickBack, a ROM switcher for all Amiga computers, including the A600.

KickBack will enable users to choose between versions 1.3 and 2 of Kickstart. It requires no soldering; it connects instead via a ribbon cable, which also solves any conflicts of space with internal accelerators and so on.

A particular ROM is selected by holding down the [Amiga] and [Control] keys simultaneously for a fixed period. After this a tone will sound, informing the user that the ROM has been switched, and also which ROM is now being used. The user may also choose which of the two ROMs is to be used as the default on boot-up.

KickBack costs £27 and is available from Silica Systems ☎ 081 309 1111 and HB Marketing ☎ 0753 686000. ICD is on ☎ 0101 815 9682228.

FIRST REAL WORLD APPLICABLE NEURAL NETWORK FOR AMIGA LAUNCHED

NEURAL NETWORK SOFTWARE

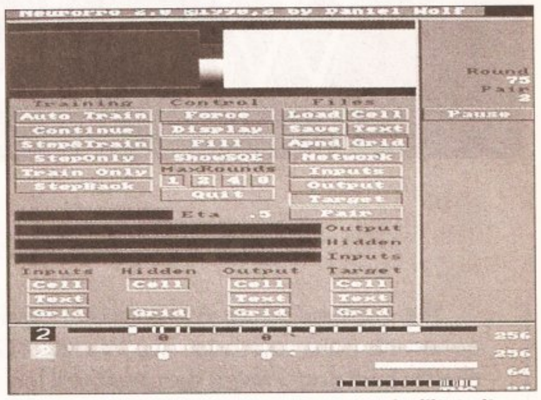
American-based software house MegageM has released a professional neural network package for use on the Amiga.

NeuroPro 2 uses a three layer back-propogation system with up to 256 cells per layer and up to 131,072 connections in total. It utilises a Workbench 2 look and feel to make its application in pattern recognition, speech recognition, language translation and so on as easy as possible. Control from ARexx is also possible.

The system makes full use of the Amiga's graphical abilities to show the workings of all network operations and data objects.

Data can by input at up to 256 bits at a time, in the form of ASCII text, arbitrary bit arrays or as arrays of pixels.

The package requires a maths co-processor to run, and a minimum of 1.5Mb of RAM, although 2.5Mb are recommended. It is available at an introductory price of $199.95 until the end of August, after which it will sell for $299.95. A demo version, which doesn't need a maths co-processor to run, is available for $12. MegageM ☎ 0101 805 3491104.



***NeuroPro 2* has a graphical front end to facilitate its use in real world situations. You'll need a big Amiga!**

HOME OFFICE PROGRAM TO BE RELEASED



There'll be no escaping extra office chores with Europress' *Mini Office* for the Amiga

Europress is to launch an Amiga version of its popular *Mini Office* home business package.

Mini Office was originally released for the Commodore 64 computer in 1984. It has been updated for the Amiga, and consists of an integrated word processor, spreadsheet, database, graphics program and set of disk utilities.

The word processor may be used in conjunction with the database and graphics modules to produce mail merges. A variety of graph forms are supported, including bar, line and pie charts.

A price has yet to be confirmed, although it will be between £60-80. Europress ☎ 0625 859333.

TITLES FOR VIDEOGRAPHERS

Videographers may be interested in a new package from Elite Graphics.

Videopack is a set of eight disks containing animations, backgrounds, ANIM brushes, text brushes and special effects, all of which load into version III or IV of *Deluxe Paint*. The package is designed to help desktop video users to add captions and titles to their masterpieces.

Subjects covered by the package include weddings, engagements, festive holidays, sport and children. A minimum of 1Mb is needed to make use of the animations.

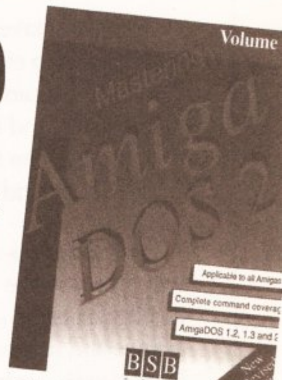
Videopack costs £24.99 from Elite Graphics ☎ 0827 288348.

AMIGADOS BOOK UPDATED

***Mastering AmigaDOS 2 Volume Two* has been updated to take into account the commands included in version 2.04 of the Amiga's operating system.**

The book, written by Mark Smiddy, gives an alphabetical listing of every command available under AmigaDOS, from version 1.2 through to the very latest. It includes appendices that deal with error codes, viruses, the Interchange File Format and the Mountlist.

Mastering AmigaDOS 2 Volume Two costs £19.95 and is published by Bruce Smith Books ☎ 0923 894355.



Relax in front of your Amiga with a good book – this one's packed full of info

SOUND AND PICTURE COMPETITION

Elite Publications is organising a three pronged competition for creative Amiga users.

The first of the categories is still images, which is sub-divided into hand drawn images using packages such as *Deluxe Paint*, hand drawn images from HAM art packages, and images created with the aid of a computer, such as ray-traces and fractals.

The second category is for moving pictures, which can be submitted as either ANIM files, stand-alone demos or on VHS video tape.

Prizes for both of the above categories are £300, £70 and £30 vouchers for purchases from Trilogic Computers.

Sound samples and music form the third category of the competition. Sound effects, instruments and music are permissible.

Entries to the competition must be either in IFF format or on audio tape. The best ten entrants will receive a *TechnoSound* sampler and have their work released into the public domain.

The closing date for the competition is at the beginning of September. For further details call Elite Publications ☎ 0733 571109.

MORE FONTS...

George Thompson Services has released a collection of Compugraphic fonts.

The collection, the first of many, comes on three disks containing a total of 37 fonts. They are suitable for use with all versions of *Professional Page, PageSetter 2, PageStream 2.x* and Workbench 2.x via the Fountain utility.

The pack costs £9.99. George Thompson Services ☎ 0707 664654.

BOOK FOR BASIC PROGRAMMERS

A new book for Basic programmers has been released by K&M Publishing.

Called *Creative Basic*, the book is by D Martin Evans and consists of a variety of functions, procedures, subroutines, programs and tips to aid the Basic programmer. String manipulation, dates, numeric functions, box drawing, menuing, conversions, indexing and full screen editing are all covered.

The programs are written in *Turbo Basic*, and it is claimed by the publisher that they will be easily convertible to other dialects.

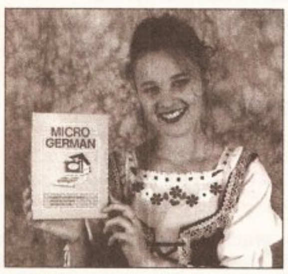
Creative Basic costs £5 from K&M Publishing ☎ 0490 2328.

PRINTERS GOING CHEAP

Kodak Diconix 150 Plus printers are being sold cheap by Morgan Computers, specialists in surplus and excess stock computer hardware.

The printers, which retail for £345, are being sold for only £150. They are portable ink jet machines capable of up to 150 characters per second. They connect to the Amiga via the parallel interface and are capable of both Epson and IBM emulation modes. Morgan Computers ☎ 081 575 0055.

LEARNIN' GERMAN



Verstehst du diese Frage? If not you'd best get hold of *Micro German*

Educational software house LCL has released *Micro German*, a package designed to take students up to GCSE standard in German.

With the aid of graphics and sound the package teaches written and spoken German. It joins LCL's Micro range – *Micro Maths*, *Micro English* and *Micro French*.

LCL hopes that the package will appeal to business people, as well as students, thinking in terms of the forthcoming single European market. A program to automatically generate business letters is incorporated.

Micro German costs £24 (plus 99p postage and packing) from educational software stockists or direct from LCL ☎ 0491 579345.

NIKLAUS WIRTH'S LATEST LANGUAGE TO BE RELEASED FOR AMIGA

MIDSUMMER PROGRAMMERS' DREAM

Real Time Associates is to launch the first commercial version of Oberon-2.

Oberon-2 is the latest brainchild of Nicklaus Wirth, creator of Pascal and Modula-2. The main advance it offers over Modula-2 is the addition of object-orientated features. These enable the programmer to treat the data, rather than the program itself, as the most important feature of the application under development. Such a methodology is thought to aid the rapid production of reliable code.

The package released by RTA is called *EXTACY*. It is not a compiler as such, but rather a set of two translators. One is a Modula-2 translator, the other an Oberon 2 translator. Both produce C code which must be further compiled with a package such as *SAS/Lattice C*. With *EXTACY*, the programmer is at liberty to write part of an application in Modula-2, part in Oberon-2, and part, perhaps the Amiga specific areas, in C, and then link the whole lot together.

The C code produced by the translators is said to be very efficient; although the programmer is free to optimise or modify the resulting C code as necessary.

A program is currently under development that will convert the Amiga C include files into Oberon so that the system can access all of the Amiga's facilities. It will either be included with the finished *EXTACY* package or supplied as an update.

EXTACY will cost £150 from Real Time Associates ☎ 081 6567333.

HUNTING FOR FONTS

EM Computergraphic has just been named as the sole UK distributor of American-based Computer Safari's collection of fonts.

The fonts are Adobe type 1, which means that they can be used directly with *PageStream* or with *Professional Page* after conversion by *Professional Page*'s *Fontmanager* program.

The first sixteen disks in the collection, which each contain three fonts, cost £7.99 each. A further eight disks are available with slightly more esoteric fonts for £12.99 each.

In addition to these disks, EM Computer-graphics is distributing a number of public domain and shareware fonts which have been sourced from America and Canada.

Volume 3 contains 34 fonts for use with *PageStream* only. It costs £5. Volumes 4 through 7 each contain between 60-80 Adobe type 1 fonts across five disks.

Each volume costs £12.50. For more information on the above contact EM Computergrapics ☎ 0255 431389.

LICENCEWARE REGISTER ESTABLISHED

A number of UK public domain houses have formed a single organisation to deal with the distribution of licenceware.

Called the Central Licenceware Register, or CLR, the organisation aims to distribute all of the currently available licenceware disks under a single label, putting an end to the divisiveness usually associated with licenceware. Any PD library which is a member of the scheme will be able to distribute the entire range of disks.

Prices are to be fixed at £3.50 for a program based on one disk, £4.50 for one based on two. There are currently 17 titles in three categories: educational, utilities and games. All disks will be badged with CLR's Hydra logo. Licenceware programmers will benefit by being sent £1 for each disk sold.

Libraries wishing to join the CLR scheme or programmers wishing to submit software for distribution should contact their nearest participating library. These currently include 17 Bit Software, Blitterchips, Essex Computer Systems, Goldstar EC, Loadcrest, NBS, PD Soft, Start Computersm Valley PD and Virus Free PD.

SAMPLE LIBRARIES FOR AMIGA

Walkabout Music has released a collection of sound samples on 25 disks.

Each sample is taken directly from a studio master at twice the rate used in public domain sample disks. The disks are divided into different categories, including African, Indian, Arabic, guitars, strings and brass. Each disk costs £2.50, or £19.95 for 10, with an additional £1 for postage and packing. Walkabout Music ☎ 072681 3807.

NEW CHROMA KEY UNIT

Desktop video enthusiats will be pleased to hear of a new chroma key unit launched by RocTec.

The RocKey retails for £351.33 and, when used in conjunction with a genlock, enables users to superimpose live video over graphics or video, display graphics in front of video, substitute the brightness portion of a video source with a keyed image, embed graphics in video and embed video in graphics.

The product is to be marketed by Jessops photographic stores and HB Marketing ☎ 0753 686000. Jessops will be running a competition until September 1 in which any buyer of a RocTec genlock will be eligible for winning a RocKey unit.

DIARY DATES

July 19: All Formats Computer Fair. National Motorcycle Museum, Solihull. ☎ 0225 868100.

September 5: All Formats Computer Fair. National Motorcycle Museum, Solihull. ☎ 0225 868100.

September 12: All Formats Computer Fair. Sandown Racecourse, Esher. ☎ 0225 868100.

Talking Shop

A500 R.I.P. SPECIAL

Last month we broke the news that the Amiga A500 is to be discontinued. Since then, we've been inundated with a flood of letters commenting on this err... rather brave decision by Commodore to cease production of a machine which has sold 1.2 million units in the UK alone.

Here's the pick of the postbag...

DEAD BABIES

I remember the day that my new A500 arrived, nudging the sturdy but distinctly uncool CPC6128 into the dark recesses of the spare room. The dining room table gradually disappeared beneath printers and extra disk drives, cables snaked across the carpet into the Hi-Fi, the children were given a quick blast of *The Simpsons* and then told that the Amstrad was all theirs now (howls of derisive laughter), and my wife packed a few essentials and went to stay with her mother.

The world was my oyster! All those slots! And best of all, a dirty big slot in the side which would connect to anything... RAM expansions hard disks, PC emulators, expresso coffee machines...

But now my Baby is obsolete. The A600 takes smart cards, but nobody is rushing to make any. The A570 will now cost £350 as it needs WB2.0. The CDTV software is elephant doodoo. The Big Cheese at Commodore says that putting faster chips in an A500 would be like driving a Ferrari in a no-parking zone. PC386s with SVGA monitors, stonking great hard drives and sound boards can be picked up for £7-800, and PC prices are in free fall... what's a poor boy to do?

Commodore has not just shot itself in the foot, but seems to be intent on stuffing its nuts into the food processor too. Punters like myself who enjoy being a Railroad Tycoon, checking out the odd dungeon and flying the F-29 Turbonutter will be asking Santa for the low risk option of a good PC, oh and by the way, lob the kids a SuperNintendo!

Martin Badkin
Leighton Buzzard

Don't get too nostalgic though Martin will you? – It's not as though 1.2 million UK Amigas, and the software and add-ons for them, are going to disappear off the face of the planet. I'd say the machine still has a bright future ahead of it – look at it this way; sheer force of numbers is going to maintain a healthy market provision because developers and publishers can't afford to ignore such a massive user base.

WHITHER THE A1500?

So that's it then, the A500 range is officially stuffed! Do you ever get the feeling that you're having the old wossname taken out of you? At the same time, I read that production of the A500 Plus is to be terminated, I learn that the entire range of Amigas is to be "improved", and that the price of the A570 CD-ROM drive is to be hiked up by £100 and that's before it's even released! When will it all end?

I have had an A1500 for barely three months now but I'm already heartily sick of seeing "Not enough memory" on the screen, and those clunky drives are sending me ga-ga. Additional memory is a must and so too, if you want to do more than play games, is a hard drive. That's about £400 right away.

With the demise of the A500 Plus, the cost of the add-ons for existing machines will probably drop to clear stocks, so, does that mean that A1500/2000 and A3000 owners will have to pay more for their add-ons to make up the loss?

Finally, I direct this last comment to Commodore. If I knew three months ago what I know now I may well have gone for a PC instead of an Amiga. Think it over!

Richard Sharp
Dundee

I don't think you should assume you'll have to pay more for add-ons to make up for losses on A500 peripherals. But if you have any doubts then maybe you should buy that extra memory now.

> ***"If I knew three months ago what I know now I would have got a PC"***

68000 REASONS

The A600 is a step backwards not forwards. If the 500 is obsolete then it's because it only has a 68000, and what's the 600 got? The same thing – absolutely stupid!

NP Wilson
Peterborough

Yes... this is probably the fact which A500 owners find most perplexing. If the A600 had been launched with a 68020/030 or even 040 chip then all would have been forgiven and Commodore would now be receiving rapturous applause.

The A600 just doesn't appear to be any great leap forward and as such doesn't do much to instill confidence in the company.

If, for my sins, I were appointed to the board of Commodore US (and hey! – you know where to contact me guys...) I would have just put a lid on the whole subject until I had a Super Amiga about to be launched. Because that's what should have been done. As it is though...

LUNACY

The A600 – one small step for man, one...

CR Thorpe
Merseyside

POCKET AMIGA NEXT?

What on earth do those nonsense-mongers at Commodore think they are doing? Wasn't it only six months ago that they were saying that the A500 Plus was *the* product, *the* personal home computer?

You'd better keep an eye on the boys at Commodore because by Christmas they'll probably discontinue the A600 and replace it with a pocket Amiga. Don't they know a good thing when they are on to it.

From a very confused but proud A500 owner.

Mr Anon

My money is on an Amiga Organiser. Only joking...

THE AMIGA CONSOLE

So Commodore is dropping the A500 "range" in favour of the A600 – what a ludicrous move. It would seem more viable to me to release a cheaper, cutdown A600, (if it has to exist) as a superior alternative to the ever growing console market while retaining the A500 and marketing it as an entry level "serious" machine.

Also, why is it recently that every time CBM develops a minor improvement to its existing range it releases a whole new machine? The Amiga is now seven years old and is in need of a serious revamp. So why not give us a completely new Amiga and give us, the users, peace of mind and the third party developers a break. They are the people who have to keep putting the time and money into redesigning upgrades for every new machine. Surely CBM should support existing Amiga users not alienate them. It would serve CBM right if third party developers refused to acknowledge the A600. Thanks for hearing me out.

Darren Kemp
Leeds

We took an A600 apart the other day (and not with a lump hammer and crowbar I hasten to add) and lo and behold there on the motherboard was the legend 'A300'. Now, all through 1991 there were rumours circulating of a proposed Amiga console with the codename A300. I think basically what's happened is that CBM has done some furious

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back pedalling here. It's seen the abject failure of the C64 console, seen the unassailable world domination of Nintendo and Sega and realised, in any case, that it's impossible to bring out a cut-down Amiga at anything like the sub-£150 price point of a games console. Hence the A600.

DO THE WRITE THING

Having just upgraded my three-year-old Amiga 500 to a new A500 Plus, I was horrified to read that Commodore is withdrawing support for the A500.

In my opinion, Commodore has let us A500 owners down once too much. I for one will not be downgrading to an A600 to stay compatible, nor can I afford to trash my Amiga system for an A1500 or B2000. Therefore, unless Commodore at least compromises, I for one will not be continuing to support its products. For that money I can buy a nice 16Mhz 386 PC with a 40 meg hard drive.

I have written to the managing director of Commodore UK, Mr Steve Franklin, and the managing director of Commodore USA, expressing my views, and I would strongly urge other users in my position to put printhead to paper and do likewise.

It is time that Commodore learned to support its customers, and not abuse them.

David French
Salcombe

You might therefore like to know that coincidentally, or un-coincidentally depending on how conspiratorial you are about these things, Commodore UK has a new MD – Mr Kelly Sumner.

> *"I, for one, will not be downgrading to an A600 to stay compatible"*

ON THE OTHER HAND

The A500, Commodore's entry level model for the past few years, was a great machine for its time. Unfortunately, everything must come to an end and in the computer industry lifetimes are often shorter that of a hedgehog crossing the M1.

Next up the line are the A1500/2000 series computers. Excellent machines and almost infinitely expandable, but I don't think that even these will defy the grim reaper for much longer either.

Finally the A3000, the top of the range and definitely top of the price range Amiga. A marvellous machine held back by the fact that it costs almost as a much as an annual season ticket from Brighton to London on British Rail.

The good thing is that, at this time, only two series of processors are widely used on the market. The 680x0 and the 80x86 CPUs, both of which are available to Amiga users via accelerators and Bridgeboards, which means that current users won't be left out.

As for chip upgraders – well at least Commodore released models with the ECS and Kickstart 2, which saved people who bought their machines in the last six months from forking out on upgrades, and those who have old models can buy an upgrade and have it fitted quite easily and cheaply. Even if you want the Super Agnus chip with 2Mb of Chip RAM, third party manufacturers have made an adaptor for A500 and A1500/2000 machines. But because of the way the A600's motherboard is made, they will have great difficulty in upgrading that.

As for the 'credit card' slot on the A600, I doubt if many items that aren't already available for the A500 will be manufactured for it until it's known just how popular the machine is, and even then I'd bet my last penny on a third party manufacturer producing an add-on with the Gayle chip and a 'credit card drive' for existing machines.

Personally, I think that the A600 machine is just a bridging machine for a better A800 or A2200 running a 68020 CPU, and won't last for long. I believe the A1500/2000 series will soon die a natural death.

Hopefully Commodore will reduce the price of the A3000 enough to make that the mid-range machine and a new A4000 model the top of the range. Either way, unless Commodore makes a radical change to AmigaDOS and Workbench, existing users shouldn't be left out too much. Preferably, Commodore's 'Power Up', the machine upgrade system, should be made more comprehensive as to allow more users to upgrade with better deals. After all, if it wasn't for Amiga lovers all over the world, there wouldn't be anything to upgrade anyway.

By the way, I'm an A1500 user so my machine could be phased out as quickly as the A500. Although this worries me, I have to look at the future, and personally I'd rather have a new range of Amigas than no Amigas at all.

Kevin Breidenbach
Herne Bay

A good, positive angle there Kevin and one which I think is the best way to reflect on this whole development. It's got to be only a matter of time before some enterprising third party company brings out an A500 to A600 add-on connector. As I said earlier, sheer force of numbers will dictate it.

QUICK GOODBYES 1

I think the A600 will fail to sell like the A500 did, it certainly isn't an improvement.

RL Hughes
Darlaston

I feel this is a great kick in the teeth from Commodore to all one million of its supporters.

Julian Baum
Chester

Commodore needs to take a serious look at Sinclair. Watch out! – you're heading the same way.

P Betts
Leydene

The A600? I like it, but it should have three things, battery power, LAN and a screen in a clam-shell lid.

Graeme Bell
Glasgow

Commodore could have warned its users that the A500 was to become obsolete.

Mr JA Ettles
Bury

BUT THEN AGAIN...

I was horrified by the announcement that Commodore is to junk the A500 and A500 Plus, mainly because of its crass idiocy in treating one million owners as if they were just a set of sales statistics.

I bought my A500 a year ago, not for games, but because it was cheap, and went on to discover what a great number of things one can do with it: designing knitwear for my knitting machine with *DPaint*, corresponding with friends and business people, desktop publishing and the whole world of PD programs which is a revelation.

I don't want a costly all-singing, all dancing, high-spec machine to do all these bits and pieces, nor do I want an A600 which is mainly for games. What I want are improvements to the A500 and A500 Plus and a bit of continuity. I definitely don't want an "end of the line" announcement which is, to say the least, a slap in the face for one million Amiga owners.

Commodore has really flipped its corporate lid this time around!

Margaret Haedicke
Bridgewater
Somerset

I think you just have to rest assured that third party developers and publishers will provide the continuity you are looking for Margaret. But by all means have a good moan in the meantime.

> *"I don't think the A1500/2000 series will defy the grim reaper either"*

A BUNCH OF CYNICS?

I purchased an Amiga A500 Plus in November 1991. Never having owned a computer before it has been a challenge to be able to use it in a productive manner. Seven months later I have managed to get to grips with some aspects of its use. It comes as a great disappointment to learn that the A500 range of computers is now no longer in production.

It is my opinion that Commodore has little commitment to its existing customers. This is displayed by the cynical comments of Commodore's representative, Kelly Sumner, in *Amiga Shopper*'s July issue.

Computers are unlike most items which are purchased in a shop as they rely heavily on software and hardware produced and supported by independent companies. This could be adversely affected by the news that the A500 range of computers will no longer be produced.

My other concern is, if in the future my computer should require repairs, will spare parts be readily available?

Derek Brown
Kilmarnock
Ayrshire

I can only imagine that spare parts will always be available if there's sufficient demand for them. It's like old cars. I have a 1969 BMW which is no longer 'officially' supported but you just find that small companies turn out 'cloned' spares, mostly at significantly cheaper prices than the

originals. In any case, I guess there's literally tons of A500 spares out there – look at how many Amigas need fixing!
(Only Joking – admission 2).

MURDER MOST FOUL

I read with interest your article on the death of the A500 Plus. I have quite a few friends with Amigas and all of them said that this is the end of the Amiga. A lot of third party manufacturers are going to either stop making extras for Commodore computers or just produce add-ons for the new breed.

Commodore has constantly ignored the people who have supported it (and made it vast profits) and hampered developments by others who could have pushed the Amiga forward, by refusing to allow its chips to be used – take for instance the few failed attempts to produce a lap top by German and American firms – these could have opened huge new markets but, no, Commodore has scuppered every attempt to bring such machines out.

Well, as far as I can see, once again it's the end user who is left out. When the new Plus came out it was hailed as the new wonder to take the Amiga into the 90s. Now all those people who bought new 500s or upgraded their 1.3s have been dumped by Commodore. I myself have spent nearly £1750 on Commodore hardware in the past year and now I am seriously thinking of selling up and buying a PC, at least I will be able to keep up with changes thanks to the way the PC is set up, ie upgrading a 286 to a 386 is easy, just spend £150 and insert a new motherboard – no problems.

> "If Commodore had any sense it would have released a 500 with a faster processor at least a year ago"

If Commodore had any sense it would have released a 500 or 1500 with a faster processor at least a year ago – the prices of such things have been dropping for ages but, no, it stuck blindly to the same old 68000 with the exception of the 3000.

The Amiga is now at the same stage as the Speccy was two years ago and we all know where that is now... and you cannot say that it will not happen to the Amiga as there are over a million of them in the U.K alone and that will keep it going. The humble Speccy had sold over 3 million in the UK, even before the 128 was released and that didn't help it.

The way forward is not by alienating people who have invested lots of cash and time in Commodore's products, but by bringing out sensible upgrades with as much compatibility as possible with older models. This gives people the chance to buy upgrades at a reasonable price, not bringing out stupid things like the 600. Who in their right minds is going to develop for this? I can just see software houses investing in the smart-card port idea when the Amiga scene is dying; all they are going to do is move into PC and console markets; why invest in the smart-card if Commodore is going to bring another computer out in a few months with yet more stupid slots, etc?

To save the Amiga, the people say Commodore should trash the 600 and any machines based round it that they might be bringing out, and go back to the 500 Plus/1500 but stick a 68030 cpu and 68882 fpu in some of them running at 25MHz/33MHz with a SCSI interface. R.I.P. the Amiga – killed by Commodore's inability to support end users.

Born – June 85. Murdered – May 92.

M Barker
Hull

I take your point about the Spectrum but the situation here is different. It's not as though you can significantly upgrade a Speccy by sticking in a 68040 card is it? No. The Speccy died because it was superseded by technological advance. With the Amiga you can at least transform its power beyond belief and, with emulation, even run a 386 PC.

MISUNDERSTOOD YES...

It seems to me that Commodore has completely misunderstood where the A500 series now lies in the market place, namely that it is an upgradeable *affordable machine* capable of being used as a simple games machine or for more serious business purposes after improving the machine internally as well as externally.

People are able to *improve* the performance of the A500 *gradually* as their pocket allows.

My A500 for example has a Microbiotics VXL30 25Mhz accelerator board now with Co-Pro, an A590 fitted with 40 meg drive with two meg memory expansion and a SuperRam 500RX 2 meg (at present) also a Rendale Genlock all of this added gradually. With the scrapping of the A500 you will not have a machine in the A500 price bracket that can be turned in to a more powerful machine. Certainly it would seem impossible to improve an A600 in such a way!

> "In short I think Commodore is very slowly committing suicide"

In short I think Commodore is very slowly committing suicide. It has developed two flexible machines (thanks largely to third party suppliers) called the A500 and the Plus. There is a huge network of companies supporting the A500 and it has a large amount of users. But it's been all thrown away.
***Wake up* !!**

Mr G Scott
Bognor Regis

BUT UNEXPANDABLE?

What on earth is Commodore doing switching to SMT (Surface Mount Technology). It makes the A600 virtually impossible to expand to any large degree. This will stop a lot of people from buying them; for instance, small business' which need an emulator won't buy them, because none of the emulators can be plugged in. As a side effect of SMT, people with A500s could be worried about future expansions not being made for their machines. Also, what happens when Commodore releases new versions of custom chips? Can you see Amiga owners all over the country trying to solder a new Agnus into the thing? It's difficult enough for a professional to do.

As I see things at the moment Commodore needs to do one of two things (or both) if they want to stay on top. Either lower prices all round, (drastically in the case of the A3000) or upgrade the machines by a large amount so people are getting good value for money. I see room for four versions of the Amiga. The A600 for the games player. The A2000 for the serious home user. The A3000 for the professional on a budget. And lastly, the A4000 (with a 68040 CPU) for the professional who needs serious power.

Stephen Boddy
York

I don't think you should assume the A600 is unexpandable in the way you refer. It has a pretty decent 25-pin edge connector which opens up to the outside world of add-ons – it's just that CBM has caught everyone on the hop and there's none available yet. Time will tell...

QUICK GOODBYES 2

Why didn't they give the A500 a faster processor, new custom chips and take notice of the tremendous industry support out there? Build on success, not kick it in the teeth.

John Ward
Derby

The only people who will enjoy the new A600 are the sort of people who think *Mario* and *Sonic* are the best thing since *Space Invaders*.

Ian Shillito
Uxbridge

All in all I think the A600 is a cut-down A500 games console not worthy of the name Amiga and the sooner it dies the better.

Graham Smith
N Featherstone

Now that the A500 is dead, Commodore is bound to kill off the A2000 as well. It's OK to say trade-in and buy a A3000 but they're overpriced and buying a 040 card for my 2000 would be cheaper.

Robert Hart
Roehampton

So there you have it...except for this:

COMMODORE IS DEAD

Stupid... idiotic... insane... the list goes on. There's sure to be loads of comment and anger over the loonies at Commodore scrapping the A500/A500 Plus – suffice to say I will personally never purchase any product by them ever again.

Kev Allcock
Stockport

Just one of the many letters that seem to sum up 'the feeling on the street'. Depressing stuff maybe but take it from me – there's loadsa life in the old dog yet!

NEXT MONTH

TALKING SHOP will return to its normal format – so get writing on anything and everything under the Amiga sun and send it to me, Andy Storer, at: Talking Shop, Amiga Shopper, 30, Monmouth St, Bath BA1 2BW.

200 TOP TIPS

Here it is – the greatest collection of Amiga tips ever printed. From programming in assembler to word processing, we give you the hints that ensure you get the most out of your machine. One basic tip before you read on: subscribe to Amiga Shopper

HARD DRIVES

A hard drive is one of the most essential purchases for all Amiga users. Choosing and using a hard drive can be tricky; there are quite a few different drives on the market, some are excellent, some are real stinkers.

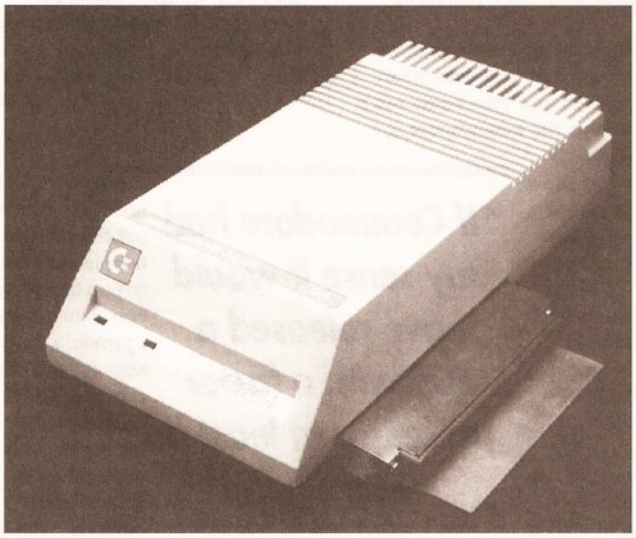
How do you work out which is the best to buy? And once you have your hard drive, how should you go about using it. And how should you make sure your hard drive continues to perform flawlessly?

1 Space – Work out how much hard drive space you really need. Remember that each floppy disk you install on your hard drive will eat away nearly 1Mb of your precious storage.

Don't expect to be able to install many games on hard drive. Most games are copy protected, so check on the boxes to see if they will allow hard disk installation. If you're only interested in word processing you can probably get away with a small 40Mb or 50Mb hard drive (the 20Mb drives still sold by some companies, in particular Commodore, are really not worth considering unless on a really tight budget). Desktop publishing, graphics, databases and programming require a little more space to work, and if you're going to do any multimedia work you're looking at big (500Mb+) hard drives.

2 Plug-in and go – Unless you know your SCSI terminators from your Rigid Disk Blocks, make sure you buy your hard drive and controller together and make sure that the drive is preformatted and installed by the supplier. This will mean you can plug in and go when you get your hard drive home, and you won't be frustrated with trying to get installation programs working. Under no circumstances be tempted to buy a hard drive cheap from an auction. Most of them don't work, and those that do will be almost impossible to link to the Amiga. You may think that £50 for an 80Mb drive is cheap when you buy it, but it's an expensive doorstop when you can't run it.

3 Drive mechanism – Check what type of drive mechanism is being supplied; most are SCSI, but some are XT or AT IDE drives. In general, SCSI is the best (as it will allow you to add up to six more drives, CD-ROMs, tapestreamers or other devices to your system), whereas IDE will only allow one extra hard drive to be attached (and on some controllers none at all). AT IDE and SCSI drives are more or less the same speed, but XT IDE and MFM/RLL drives are much slower, and should be avoided.



What's so hard about a hard drive? Get to grips with tips numbered one to ten and you'll be able to plug in and go!

4 Drive standards – Commodore, when designing its new generation of Amiga hard drives (the A590 and the A2091) published a specification for hardware manafacturers to follow so that different drives and controllers from different manufacturers could be compatible. Fundamental to this is a feature called Rigid Disk Block (RDB). It means that a small table of information about the drive including where the partitions are set up, what file system they are using, and their names is written to a block on the disk. Any controller using the RDB system can then look at this block and correctly identify and use the drive, so a hard disk formatted on a Commodore Amiga 3000 can be read fine when plugged into the back of a GVP Impact 500 controller. This may not seem useful, but it means that software (such as drive optimisers and disk repair programs) can be written to function with all such controllers. Not all controllers support this. GVP, Commodore, Supra, IVS, ICD, Nexus and Microbotics controllers support RDB; some others do not.

5 Extras – Controllers vary widely in extras supplied. Some have room for expansion RAM to be fitted, often up to 8Mb. With Amiga 500 controllers check how much the full 8Mb will cost, in some (for example the Supra and GVP), using 8Mb requires expensive 1Mbx4 chips. Other extras to look out for are a SCSI through port (for adding

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external drives), a game switch (for disabling the hard disk to load floppy based games), and an external power supply (essential if you've got a hard drive plus Fast RAM).

6 Through ports – If you've got an Amiga 500 and you've already got a device plugged into the expansion socket to the left of the Amiga, you may have to remove this to use the hard drive. While some hard drives and other devices have through ports, these are notoriously unreliable, and you don't want your hard drive to crash while you're in the middle of saving something.

7 Virus alert – Once you have got your hard drive up and running you should install a virus checker on your machine to avoid infection. The only types of viruses that can infect a hard drive are 'file viruses'. The hard drive does not have a 'boot block' in the same way that a floppy disk has, so viruses cannot infect it this way. Always boot with your hard drive if possible; if you have to boot with a foreign disk disable the hard drive if you can. Another good way to avoid viruses is to upgrade to Kickstart 2.04 – most viruses do not work under the new operating system, particularly the nasty Saddam virus.

8 Backing up – Back up your hard disk regularly. It is well worth investing in professional backup software (*Quarterback 5* and *Ami Back* are two of the best) to do the job properly. If you've got a large hard disk you will either need a lot of blank disks and a lot of spare time, or a SCSI tapestreamer, which can back up over 500Mb in one go.

9 Fragmentation – You may find that after a few weeks use your drive will seem to slow down, this is because the disk is fragmented. Files are not always stored in one lump on the disk; sometimes, if there are no gaps large enough for the file to fit in one place, the file will be split into several 'fragments' which are placed on different physical areas of the disk (although it will still appear as one file to the Amiga).

When you try and load this file it will take much longer (as it has to load several small parts). To cure this you need to 'defragment' your hard drive. To do this you can back up all the files on to disks, reformat and restore all the files, or use a program such as *Quarterback Tools* to defragment the drive (Always back up the drive before defragmenting).

10 Parking – Most hard drives have autoparking (when the power is turned off the drive heads move to a safe place for transit). All modern SCSI drives autopark, so you'll never have to use the Park programs provided with the drives. Only elderly A590s need to use Park: modern A590s have SCSI drives which autopark.

2D PAINT PACKAGES

Virtually every Amiga owner in the known universe owns a 2D paint package. Whether you use *DPaint* or *Photon Paint*, *DigiPaint* or *SpectraColour*, here's a few tips to help you get the most from your pixel punching program.

11 HAM – Amiga paint packages generally come in two flavours – HAM (*Photon Paint 2*, *DigiPaint* etc) and non-HAM (*DPaint 3*, *Express-Paint* etc). Although several paint packages are not starting to bridge this gap (notably *DPaint 4*), which type of paint package to buy is a difficult decision. Generally though, always go for a non-HAM package first and move up to HAM later. HAM can be a pain to work with, so you'll find a non-HAM paint package much easier to contend with.

12 Basic tools – When choosing a HAM paint package, check that your chosen program includes all the basic painting tools. Many HAM paint packages are available that offer a multitude of power (but often useful) extra features, but fail to deliver basic painting tools. *DigiPaint 3* is a good example of this. Although it is arguably the fastest and most capable HAM paint package available, it lacks a fill tool. *DPaint 4* is a very capable HAM paint package but it can be painfully slow.

13 Image processsing – A good companion product to any 2D paint package is an image processing program such as ASDG's *Art Department Professional* or Progressive's *PIXmate*. These can be a godsend when you need to convert images between different formats (a low resolution picture to high resolution, a HAM picture to 32 colours etc). Unless you're working with 24-bit images, *PIXmate* is the best image processing program available. It's available from Silica Systems on 081 309 1111.

14 Shading – Realistic shading effects can be achieved quickly and easily within *DPaint* using its excellent 'Smooth' facility. To create graduated shading between two colours, create a spread of colours between the two colours you wish to blend and then use the Freehand Dotted tool to smooth over the border. This can be very effective when used on posterised images.

15 Colour conversion – If you need to convert a HAM picture to 32 colours or less under *DPaint 4*, set the screen mode to the mode that you wish the image to be converted to and then load the HAM image in as if it were a 32 colour image. *DPaint 4* will then convert the HAM image to 32 colours for you, removing the need to use a separate image processing program. *DPaint 3* has a similar facility, but it cannot handle HAM images.

16 Stencils – Large unconnected areas can be re-coloured without affecting other areas of the same colour with ease using *DPaint*'s stencil function. Simply select the Stencil function and then mark the colour that you wish to recolour, click on 'Invert' and then 'Make'. You can then recolour the areas in question in bulk using the filled rectangle tool without messing up any of the colours that surround them. The Stencil is very powerful but few users seem to use it to its full potential.

17 Mono digitising – If you do a lot of digitising using a mono video digitiser such as VidiAmiga, then get your hands on *DigiPaint 3*. *DigiPaint 3* has a very powerful 'Colorize' function which enables you to apply coloured tints to any area of a monochrome images. The results are very impressive indeed.

If you can't quite stretch to the price of a colour digitiser, then *DigiPaint 3* provides a quick and easy method of adding colour to any mono image.

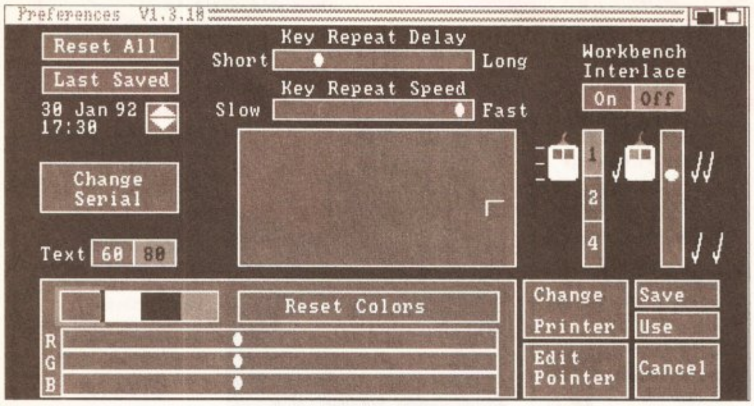
18 Changing size – If you need to resize an image to either low, medium or high resolution within *DPaint*, simply alter the page size to the same as the screen mode you desire. *DPaint* will then ask you whether you want the bitmap stretched or compressed to fit the new page size. Although the image will still be saved in the original format, just select 'Cancel' when *DPaint* asks you whether you wish to change the screen mode when the image is loaded into a screen of the desired mode.



Unravel the mysteries of shading, colour conversion and image processing with tips 11 through 20. Never before has handling *DPaint* been this easy

19 Extra HalfBrite – Although the Amiga's rather obscure Extra HalfBrite mode is usually pretty useless, it can be very useful indeed for adding shading effects to images with *DPaint*. Say for example you wanted an object to cast a shadow on to another object within *DPaint*. All you would have to do is to pick up the object that is to cast the shadow as a brush, select 'HalfBrite' from the Mode menu and stamp the brush down where the shadow is to appear. The brush will then be pasted down using darker shades of the pixels in the background.

20 Background and foreground – If you need to mix a background from one image with the foreground from another (both with different palettes), reduce both to sixteen colours in low resolution, load in the first, pick it up as a brush and then save it off to disk. Load in the second image then load in the first in its brush form and then select 'Remap Colours'. *DPaint* will then automatically mix the two images and create a new palette that retains both palettes.



From screen size to mouse speed, you can customise your whole set-up with the aid of the Preferences screen. Printer and serial port (used for modems) settings can also be altered

WORKBENCH

Much of the Amiga's power goes unnoticed by the new user, who instead often becomes frustrated at its apparent inability to carry out a simple task. Much of this frustration can be avoided by learning the little tricks and tips that make life easier.

So off we go with ten tips for getting to grips with the Amiga's Workbench. Avoid all that tiresome rummaging through countless reference manuals. Read on, and become a power user...

21 Drawers – These are a convenient means of filing programs and data. Placing something in a drawer is a matter of selecting its icon, dragging it over the drawer and releasing it. A new drawer is created by making a copy of the existing Empty drawer. (Select Duplicate from the Workbench menu). This can be renamed and placed wherever you like.

Have an organising principle behind your drawers. You might choose to place all of your DTP software in one drawer, all of your programming languages in another, and all of your graphics files in a third. There may well be drawers within each of these, determined by each package's requirements.

22 The Trashcan – Get rid of an unwanted file by dragging this icon into the Trashcan; even a drawer and its contents can be deleted this way.

Nothing is actually removed from the disk until you click on the Trashcan and then select Empty Trash from the Disk menu. Until then you can double click on the Trashcan and it will reveal its contents in a window.

23 Snapshot – This repositions icons and windows.

If you want to move an icon to a different area in its window, select it and move it to its new home. Then select Snapshot from the Special menu, thus storing its new position.

Windows can be moved around the Workbench screen and re-sized in a similar manner – to do this the window alone must be selected.

You can Snapshot several icons by multiple selection. While holding down the [Shift] key, select each icon in turn by single clicking on it. They should all become selected. Now choose Snapshot; all of their new positions will be remembered.

24 Preferences – The Preferences program, found in the Preferences drawer of Workbench, enables you to customise various Workbench settings: screen colours can be altered with the slider controls at the bottom left of the screen; the sensitivity of the mouse can be adjusted such that a physical movement corresponds to a varying degree of movement in the screen pointer; and the delay between a left mouse button double click can be altered, as can the key repeat speed.

You can choose between having 60 and 80 characters in a column – 60 columns is easier to read on a TV. There is also a choice between interlaced and non-interlaced screens. An interlaced screen has twice as many horizontal lines in it, and as such it can display twice as much information.

25 Initialize – This prepares disks for use by the Amiga. Any blank disks you buy must go through this process before anything can be stored on them. If you initialise (sometimes called 'format') a disk already in use, then all information stored on the disk will be lost.

To initialise a disk, put it in the drive, click on its icon once and select Initialize from the Disk menu.

26 Duplicate – This copies the entire contents of one disk to another. Click on the disk to be copied and then select Duplicate from the Workbench menu. You will be asked to periodically insert the source (the disk you are copying from) and the destination (copying to) disks as the process goes on.

Duplicate can also be used to copy files. Select the icon and then Duplicate.

27 Copying files without icons – This is often necessary when copying PD programs to Workbench or hard disk.

If a file doesn't have an icon, the only way you can see it is via the Shell. Open the Shell and make the Dir, Copy and Makedir commands resident by typing:

```
resident c:dir
```

and so on. Then insert your PD disk and find out what is on it by typing 'dir'. Transfer each of the listed files to your destination disk using the Copy command:

```
copy df0:FileOfInterest ↲
MyDisk:
```

Other files will be held in directories. If directories with the same names already exist on your destination disk, then copy the files into those directories. Otherwise, make a directory of the same name on the destination disk:

```
makedir MyDisk:NewDirectory
```

and then copy the files across.

28 Info – Among other things, this Workbench menu option can be used to link a project with its parent application.

If you have a program written in AmigaBasic, then you can write the name of its application and where it can be found in the Default Tool box of the file's Info window – in this case 'Extras 1.3:AmigaBasic'. You can then use the project by clicking on its icon instead of having to click on its application first and loading the project from there.

If you later move the application to another disk, you can modify the Default Tool box in the project's Info window to point to the application's new location.

29 SetMap – This tells the Amiga which national keyboard you are using. It is found in the Systems drawer.

Click once on SetMap, select Info from the Workbench menu, click in the Tool Types [Add] box and type the following:

```
KEYMAP=gb
```

(The first word must be in capitals.) Press [Return] and click on [Save]. Now run the SetMap program by double clicking on it, thus setting up your keyboard as a British one.

30 RAM Disk – The RAM disk can be used like an ordinary floppy disk, but is faster and its size is limited only by the memory available.

Periodically save your work to floppy, because a power loss or a reset will erase its contents.

RAM EXPANSIONS

Buying the right RAM expansion to suit your needs can be a bit of a minefield – especially if you have one of the traditionally more limited machines such as the A500 or even the latest A600. If you have a bigger model the choice is generally more limited – but the options are better.

31 How much do you need? – This depends a lot on the type of applications you intend to run. For most jobs, other than playing games, consider 1Mb to be the absolute minimum. The more complex the application, the more memory it will require. Incidentally, the size of an application does not determine its RAM requirements – a program just a few bytes long could literally grab GIGAbytes of RAM in one go. In practice of course, this rarely happens, but assume most packages

continued on page 21

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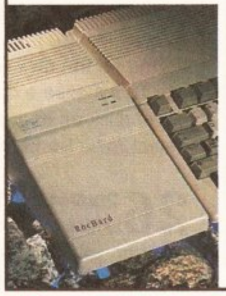


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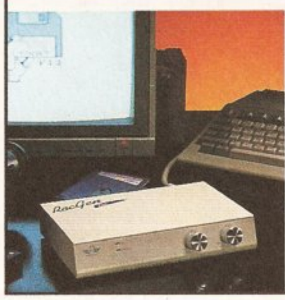


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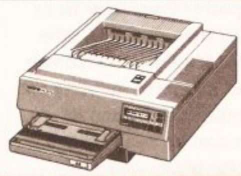
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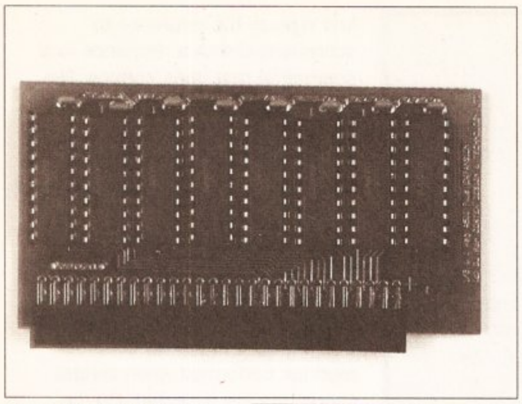
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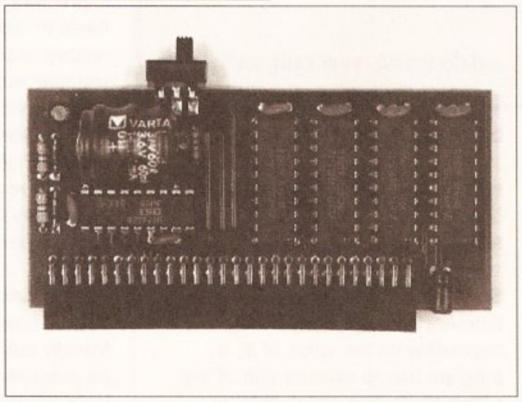
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The Cortex 1Mb – so easy to install that the instructions are on the back of the box



The Zydec 512K – one add-on for the A500 and the A500 Plus you definitely shouldn't forget

continued from page 19

require twice their own size (in bytes) of RAM and you won't go far wrong.

32 What will it cost? – If one thing is certain, RAM is never cheap and the price fluctuates all the time. Interestingly, the price (and availability) of silicon is often blamed although few RAM chips are manufactured from silicon and utilise a system of evaporated metal oxide. The price of an upgrade is determined by two major factors: basic capacity and upward expansion. The basic configuration determines the initial price. The type and design of the expansion fixes the future cost – this point is especially applicable to A500 expansions.

33 Will it be compatible? – Owners of A2000 and similar machines should have few problems with compatibility between boards since the expansion bus system is quite well defined. The problem is aggravated with the A500 since some manufacturers shoehorn their internal boards into the memory map with software patches. More costly, external expansions such as those made by Supra, Power and Cortex use a well defined standard called Autoconfig™ which solves most, if not all, the problems. The final proof of the pudding is testing it – and then it's often too late. If budget allows, stick with external boards. (One exception to this rule is the 512K and 1Mb trapdoor cards.)

34 Is power drain a problem? – Again, this is something where the bigger machines score over their baby brothers. On larger Amigas, the internal PSU is designed to cope with large RAM expansions and other cards. The story with the A500/600 is somewhat different though. Both these machines have limited power modules capable of driving about 2Mb RAM and a single external drive. Internal RAM expansions will cause extra drain and may shorten the life of both the PSU and the machine. External units are less of a problem since most come supplied with (or support) an extra PSU. If you need 2Mb or more, prefer one of these to the internal option.

35 Four or 16 chips? – In theory at least, RAM is RAM and the story ends there. Chip manufacturers are always getting more bytes-per-inch and therefore, the number of chips required to fulfil a certain memory requirement drops. An interesting aside to this is: as the chip count is reduced so are both the power consumption and the heat dissipation. Also, four chip designs are less complex, cheaper to produce in large quantities and probably more reliable. Given the option, the lower chip count is usually the better bet.

36 Chip or Fast RAM? – This question only applies to the A500/600 and A3000 machines. The first expansion you buy will probably be Chip RAM since these are the cheapest. (On the A3000, you can swap the bits around as you add more RAM.) The vast majority of applications don't care what sort of RAM you have – so long as there is enough to go around. Chip RAM is gobbled up by screen displays and the sound system so this is the most important.

37 512K trapdoor expansion with the A500 Plus – As a rule this is a waste of money, unless the budget is tight. RAM added to the trapdoor is automatically mapped for the custom chips and the A500 Plus supports 2Mb of CHIP RAM. As has already been mentioned, Chip RAM is the most important for most applications, so get as much as you can afford. The choice for A600 owners is much more limited at present, and it seems unlikely a 512K expansion of this type will be produced. Such a device would be a white elephant anyway.

38 Throughports – Sideways RAM expansions for the A500/500 Plus come in two groups: those with throughports and those without. In a perfect world, Autoconfig™ should take care of RAM in any number of external devices up to the machine's theoretical memory limit. In practice throughports can be more trouble than they are worth: some A590s for instance are known to suffer problems with the Supra 500RX. However, a RAM expansion without a throughport is a dead end – so if you cannot afford a combination unit, prefer the design with a throughport.

39 PC emulators? – Some of the more recent hardware based PC emulators such as the new Vortex card for the A1500/2000 series machines have their own RAM anyway. Emulators for the A500/500 Plus are more problematical. Both AT-Once and the KCS Powerboard will use any Autoconfig™ RAM – the KCS system supplies its own RAM anyway. If you have a PC emulator, or intend to buy one, avoid internal RAM expansions – especially those with software patches.

40 Combination units – Combo cards, those incorporating RAM expansions with accelerators, hard disk controllers – you name it – are always going to cost more in the short term because of the extra bits. However, on the A500 at least, combinations represent very good value for money because they can save a lot of incompatibility problems in the future.

However, you should be careful to choose a card which will fulfil your RAM requirements both now and in the future. The A590, for instance, only supports an extra 2Mb of on-board RAM. This might seem attractive initially, but it soon gets used up. A1500/2000 owners have it easier and there are generally less compatibility problems.

BASIC PROGRAMMING

Basic is by far the most popular programming language. Just about everyone who has ever begun to program has started with Basic. It is easy to learn, easy to understand, and offers far more power than many people think. Here are some tips to help the would-be programmers (and the more experienced but lax programmers) on their way:

41 Design before you code – Always create a logical 'blueprint' of the program you wish to write. You are not aiming for perfection, just something to guide you on the way!

42 Documentation – Do produce at least skeleton documentation while you are developing the program rather than afterwards. This way the program is still fresh in your mind.

43 Use comments – It may be obvious to you now what actions your masterpiece performs, but it may not be in a couple of years! Use comments to divide the program into named sections to make the program far more readable. See Figure 1 on page 22 for an example.

44 Clear variable names – Nowadays Basic allows the use of long variables names, so make the most of this facility to create helpful, descriptive, code.

Admittedly code written in this style will take longer to type, but it is guaranteed to make more sense than the cryptic use of variables named 'A', 'B' and so on.

45 Minimize the use of globals – Global variables are variables which can be accessed (and changed) from anywhere within a program. Although they are useful at times (error indicators and program exit flags are examples of where global variables can be used to good effect) it is usually better to create isolated procedures which work with local copies of any data that is passed to them.

46 Keep your code clean – Isolate any control sequences that your program might need so that the main body of code is not littered with awkward-to-read statments like this MIDI/serial-port related fragment...

```
PRINT# 1,CHR$(&H90 OR ↵
channel)+CHR$(note)+CHR$ ↵
(velocity);
```

Embedding these types of control sequences will make your programs look messy and more difficult to maintain. The best idea is to isolate the sequences into separate subroutines or functions.

For the above example the preliminary user-defined function definition...

```
DEF FNNoteOn$(note,ch)=CHR$ ↵
(&H90 OR ↵
ch)+CHR$(note)+CHR$(64)
```

would enable the rest of the program to send its data by using the more readable expression...

```
PRINT#1, ↵
FNNoteOn$(note,channel)
```

47 Isolate I/O Code – Try to eliminate all I/O and machine dependent statements from the main parts of code. Instead access these facilities indirectly. You do not want statements such as the following...

```
PROMPT$="Please enter a ↵
record number"
COLOUR 1,4
SAY TRANSLATE$ (PROMPT$) ↵
INPUT
```

This would mean that the program was linked to the computer on which the program was writtten. The best idea is to reference the facilities using function calls, subroutines or, subprograms...

```
REM C O L L E C T - M A T R I X
  COLLECT:
  FOR ROW%=1 TO N%
    FOR COLUMN%=1 TO N%
      PRINT"A (";ROW%;",";COLUMN%;")...  ";
      INPUT U(ROW%,COLUMN%)
      A(ROW%,COLUMN%)=U(ROW%,COLUMN%)
    NEXT COLUMN%
    INVERSE.L(ROW%,ROW%)=1 'Not relevant to the collection of
                           'the matrix - it's just that this
                           'input loop is a convenient place
                           'to set up an identity matrix.
  NEXT ROW%
  REM ________________
```

Figure 1: Use REM statements to isolate, and document, your code sections

```
FNSetScreenColour(RED)
GOSUB UserMessage
GOSUB CollectInput
REM Get record number
```

These are useful if you want to write programs that can be easily moved to other machines. In these cases, aim to eliminate all screen graphics commands, data input or other I/O and O/S specific references from the main body of the code and place them in a set of isolated subroutines at the end of the program. To get such a program running on another machine you will probably have to re-write most of those I/O or O/S related calls... but the important point is that you are unlikely to have to alter the main body of code.

48 Subroutines which do nothing – You might be forgiven for thinking that subroutines which do nothing serve little purpose. In fact routines such as the one shown below can be useful...

```
REM D O - N O T H I N G
DoNothing:
RETURN
```

Supposing an input value S has five different possible states and, depending on the value of S, a program has to execute one of five subroutines. The code could be based on an arrangement such as...

```
IF (S >0 AND S <6) THEN ON ↵
S GOSUB A, B, C, D, E
```

where A, B, C, D and E are the subroutines which perform the processing associated with the five values. During development some of these may be non-operational (or non-existent), so you need some way of preventing certain subroutines from being executed. Suppose you wanted to prevent subroutine C from being used in the above example – just replace the reference to subroutine C with a reference to a subroutine that does nothing, like this...

```
IF (S >0 AND S <6) THEN ON ↵
S GOSUB A, B, DoNothing, D, E
```

The approach is useful when you have a large number of possible test values and where not all values require a subroutine to be executed. One example is the execution of routines performed when control characters are detected. On the basis of detecting keypresses related to particular control codes you may wish to perform certain subroutines but in all probability you will not wish to support all possible control characters. Executing a 'Do Nothing' routine for all control characters that you do not wish to support provides an easy solution.

49 Plan for the unexpected – Your program should be user-friendly but don't expect the user to be program-friendly. Assume that the user will make all possible mistakes as far as use and data input are concerned and plan so that your programs do not come to a grinding halt when a user puts a wrong disk into the drive or supplies a wrong input value. Programs should provide error messages (and helpful prompts) to guide the user back on course.

50 Keep it simple – Clarity will pay off. Remember, one day you may need to look at (and understand) the code you wrote years ago in order to make changes.

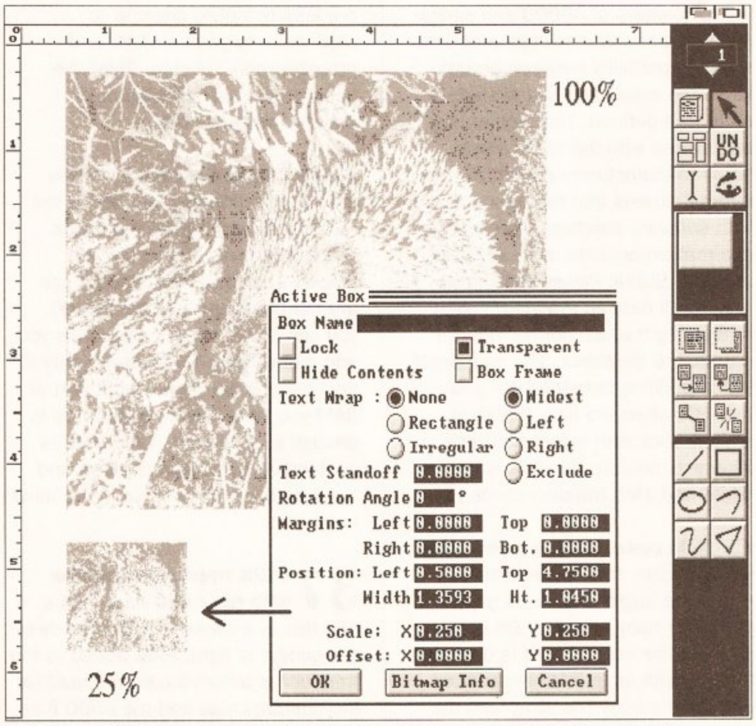
DTP

Whether you are producing the occasional single sheet flyer, a fanzine or even a whole book, you'll find the following tips invaluable for getting the very best results out of your desktop publishing package.

51 Memory considerations – To conserve memory (and increase the speed at which the program operates) work on a 2-colour non-interlaced screen. *Professional Page* has switches for this in its Preferences menu; *PageStream* users will need to alter the Tool Types of the program's icon so that COLORS=2 and INTERLACE=No.

Memory can be further conserved by opening the program on the Workbench. Alter *PageStream*'s or *Professional Page*'s SCREEN Tool Type so that SCREEN=Workbench. Alternatively, *Professional Page* users can open the program on a 2-colour non-interlaced screen and then switch the Workbench off from the Preferences menu, which conserves even more memory.

52 Keeping it fast – Compugraphic fonts, bitmaps and structured drawings all take time (and memory) to render, so it makes



Is DTP a prickly subject? Scaling down pictures and other DTP tips will become second nature with the tricks of the trade presented on these pages

sense to cut as many corners as possible.

• *Professional Page* users –
Once you have a bitmap scaled to the size you want it, X-out the graphic by selecting the Hide button in the Alter Current Box requester. If you're working with a structured drawing, make sure Wireframe mode is on, or else you'll have to wait for all the fill patterns and line thicknesses to render. When some text has been imported and requires no more editorial changes, hide the boxes containing that text so that it gets 'greeked' instead of rendered.

• *PageStream* users –
You can't hide individual bitmaps, so import, size and position all the bitmaps you require right at the start, then toggle the Show Pictures option in the View menu to cross them all out.

53 24-bit pictures – *Professional Page* users do not need lots of memory to import 24-bit pictures, but they'll need a fair bit to be able to print them to a Preferences printer.

The Amiga's printer.device supports only up to 4,096 colours, so if you are printing to a non-PostScript printer you may as well convert your 24-bit pictures down to HAM to save memory, time and disk space. Remember that HAM pictures can be interlaced, but they must be lo-res, so scale the width to 50 per cent of the height to keep the aspect ratio.

54 Bitmaps – Amiga bitmaps have a resolution of 75 dpi. To reduce the blockiness of printed output, scale bitmaps down (within the DTP program) to at least 50 per cent. If your printer's graphics output resolution is 300 dpi, 25 per cent is the smallest you can go before the software has to start removing data from the bitmap; if your printer is 240 dpi (9-pin) that figure is 31.25 per cent, for 360 dpi printers (24-pin and bubble jet) it is 20.83 per cent.

55 Squaring pixels – Screen pixels are not exactly square, and at some resolutions (like med-res) they are positively rectangular. You can help the DTP software to make a better job of scaling and printing them by preparing bitmaps beforehand by converting them to hi-res interlaced format.

Do this with *Art Department* by selecting Hi Res and Lace from the screen controls panel, and then (if necessary) enlarge the Y dimension (height) by 200 per cent. Do this in *Deluxe Paint* by selecting Screen Format from the Picture menu and selecting the Hi-Res button. When the software asks if you want the image stretched to fill the page, say 'Yes'.

If your bitmap contains too many colours for hi-res mode, convert to lo-res non-interlaced.

56 Mono printing – If you are printing to a monochrome printer then there's not a lot of point in using coloured pictures, converting them to 16 levels of grey beforehand will save time and memory.

The best tool to do this with is *Art Department Professional*, but *Deluxe Paint* is also able to convert to 16 greys, even from HAM, although you have to put some work in.

First load the picture and then change its Screen Format to 16 colours. Then bring up the palette tool and change colour 0 to black and colour 15 to white. Click on the black colour, click on Spread, click on the white colour. Now select Remap from the Color menu to get the picture looking normal again.

57 Screen frequency – *PageStream* users can take advantage of the Screen Frequency feature of the Edit Coordinates requester to get better greyscale output.

If your printer is 300 dpi, make the screen frequency figure 75 to get the printer to produce 16 greyscales. Increasing that figure to (say) 100 will give you a higher apparent output resolution (the dots will be printed closer together), but fewer levels of grey will be produced. Decreasing the screen frequency to (say) 60 will allow more levels of grey (handy for 256 greyscale TIFFs) but the apparent resolution will decrease as the dots will be printed further apart.

360 dpi printers should have a screen frequency of 90 to get 16 greyscale output, 240 dpi printers should have a screen frequency of 60.

58 *TurboPrint Professional* – *Professional Page* and *PageSetter II* users will get much better greyscale output if *TurboPrint Professional* is doing the dithering, rather than Preferences.

If you find that pictures are coming out too dark, adjust *TurboPrint*'s Gamma Correction upwards slightly and try again.

Each picture will be different, so you will need to experiment each time to get the best results. If you have more than one greyscale picture on a page, you may have to compromise with a happy medium.

59 Colour printing – You're asking a lot for a 9-pin, 24-pin or inkjet printer to give you top quality colour output of HAM pictures. Each picture, and each printer, will give different results, but one trick you can try in order to get better printed output is to convert the HAM picture to 32 colours (or fewer) before importing into the DTP package.

Again, *Art Department Professional* is the best tool to use, but *Deluxe Paint* can do a similar thing by simply changing the Screen Format to 32 colours and letting it compute a new palette. The picture won't look as good on-screen, but it will probably print better.

60 Using the RAM disk – When you are printing a desktop published page to a Preferences printer you are basically dumping a massive picture.

It takes time for the software to create that picture in memory, time to transfer it to the printer, and time for the printer to print it.

You can speed things up, if you have the memory, by using the CMD tool in order to send the output to a RAM file instead of the printer, and then using the Copy command to send the file to the printer for printing.

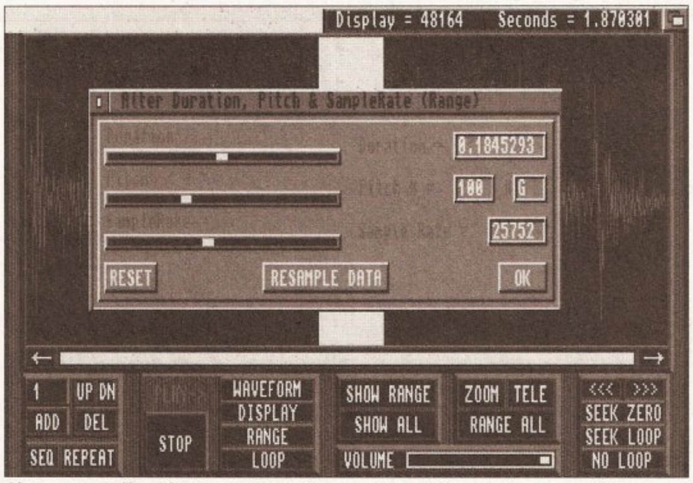
Double click the CMD icon, and then 'print' your page or document. When it has finished, quit the DTP program and open a CLI or Shell. Type the command

```
COPY RAM:CMD_FILE TO PAR:
```

and the page/document will get printed.

Depending on what you are printing, this method can reduce printout times by up to 25 per cent.

SOUND SAMPLING *and tracking*



If you can afford it, then dump the sample editor that came with your sampler and treat yourself to a copy of *AudioMaster 4*

If your samples don't quite come up to scratch, or you're confused by the plethora of poorly documented Sound Tracker programs around, read on and gain some handy insights into the world of Amiga sound

61 Quality – The quality of the samples that are obtainable from any sampler will only be as good as the source signal that you feed it. If you're sampling from a crummy tape deck, then the results that you get won't be that good. Unless you're sampling real world sounds (speech, for example) then always try to sample from CD. Even the cheapest CD players will consistently give you much better results than audio tape simply because of the cleaner audio signal that a CD can output.

62 Leads – Another equally important factor to consider when you sample from an audio source is the quality of the audio lead that you use to connect the sampler and your audio source together. Many samplers come with their own sampling lead, but these are rarely any good. If you can spare a couple of pounds, then take a trip to your

local music technology store and treat yourself to a professional audio lead. Considering their relatively low price (about £5 for 3 metres), these leads will substantially increase the quality of your samples.

63 Microphones – If you're sampling real life sounds, then a decent microphone is a worthwhile purchase. Many samplers do come with their own microphones but I have yet to see a microphone that could be described as anything other than a total waste of space. Once again, a trip down to your local music technology store will be well worth the effort. Have a chat with the salesman – he will be able to advise you on which microphone is best for you. You may have to pay at least £40 for a decent mike, but the results will be worth it.

64 Stereo and mono – When purchasing a sampler, don't ignore mono samplers in favour of the trendier stereo units that have flooded the market. To be perfectly honest, stereo sampling on anything other than a Fairlight or a Synclavier (two professional samplers with price tags to match) is a complete waste of time. Stereo samples not only use up twice as much memory as a mono sample, but they also restrict you to a maximum sampling rate of just 29KHz. Very few packages support stereo samples, so you're unlikely to ever find a use for this facility. If the sampler produces good quality mono samples, then that's the one to go for.

65 Editing software – For the best results from any sampler, it may be worth your while ditching the sample editing software bundled with the sampler in favour of one of the stand alone sample editor programs now available on the market. These may cost you anything from £50 upwards, but they're streets ahead of any of the bundled packages available.

The current top two sample editing packages on the market are SunRize Industries' *Audition 4* and Oxxi/Aegis' AudioMaster 4. Both of these packages are available from HB Marketing on 0753 686000.



Wave goodbye to the MIDI blues. Sampling's a cinch with the tips numbered 61 to 70

66 Sampling – If you are serious about your sound tracking sessions, then an absolute must is a sound sampler.

Although most trackers come with a wide selection of sampled instruments, owning a sampler will allow you to grab your own instruments adding a bit of individualism to your tracker tunes.

If you can, always go for a Sound Tracker which has sampling facilities built into it. This will enable you to grab instruments, edit them and use them within your tunes without ever having to leave the comfort of your Sound Tracker.

67 Commercial software – Although virtually all Sound Tracker utilities are the same, there are commercial trackers available which are worth checking out. One such program is *OctaMED 2* (soon to be upgraded to *OctaMED Professional*), a fine commercial tracker written by Teijo Kinnunen, the author of the PD tracker clone MED. *OctaMED 2* costs just £20 and is far superior to the PD trackers. It offers score editing and the ability to play up to 8 samples simultaneously. For serious tracking, *OctaMED 2* is a must.

68 Construction – Song construction is one aspect of Sound Trackers which confuses many people. Songs are built up within a Sound Tracker by linking together the patterns that you define. Somewhere within your Tracker will be two controls marked 'Song Position', 'Pattern' and 'Song Length'.

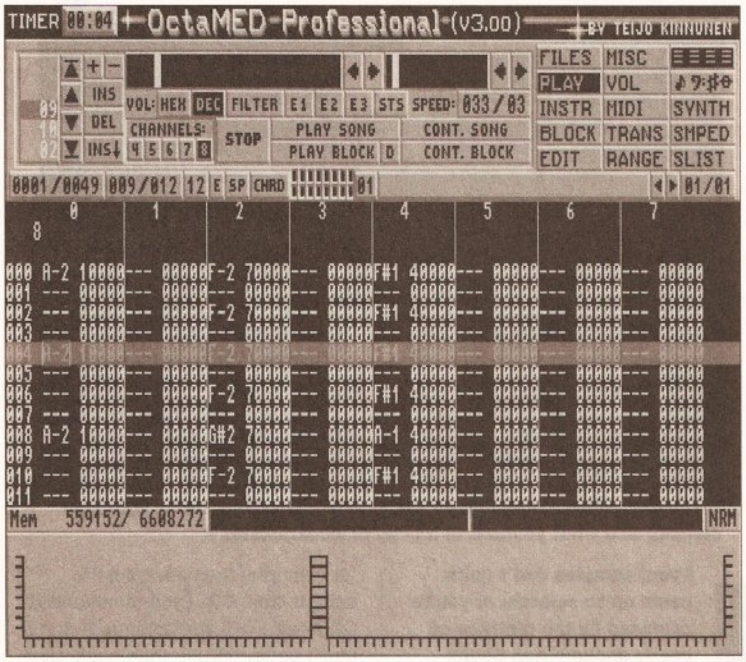
Song Position is simply a counter which dictates your position within the Song. Pattern defines which pattern number should be played for the current song position value and Song Length tells the Tracker how many Song Positions there are in your song.

69 Modular format – When choosing a Tracker, always check that the program can load and save modules in standard SoundTracker format.

SoundTracker modules are a standardised file format for Tracker songs which will enable you to load and play your songs within other Tracker packages and even programming languages such as AMOS without having to convert them first. AMOS now includes direct support for SoundTracker format modules, so a Tracker that can save in this format is far more useful.

70 Preset lists – Many older Tracker utilities were tied to a system of preset lists containing a list of sampled instruments that the program new about. Although these could well be spread across several disks, there was no way of loading a sample that was not in this preset list without exiting the program and editing the preset list from within a separate program.

Always check that the Tracker that you choose is not tied exclusively to a silly preset list. Most modern Trackers allow instruments to be loaded from any device including hard disks (some early trackers didn't support hard disks!).



Choosing a Sound Tracker utility can be confusing unless you know what to look for. *OctaMED* shown here is one of the most fully featured available

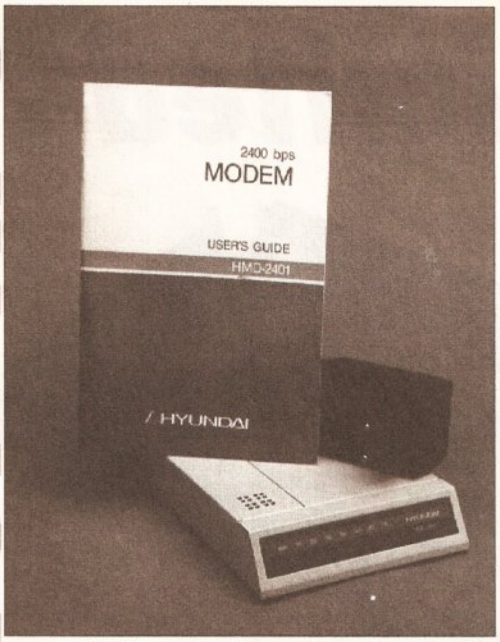
COMMUNICATIONS

Modems open up a whole world of fun: exciting boards, free software, new friends and big telephone bills. Communications is notoriously expensive but with *Amiga Shopper* by your side, you'll be able to save money, and get more out of your modem with our top tips.

71 Use Mercury – The easiest way to save money during comms work is to cut down the size of the telephone bill. Apart from buying a faster modem the simplest way of doing this is to subscribe to Mercury. For under a tenner you get about 20 per cent off non local calls – well worth a try.

72 Keep a log – Use the log facility of your comms package to keep a record of your visits to each BBS. There are a couple of reasons for wanting to do this. Firstly, it enables you to go back over any

continued on page 26



Inspired by the comms tips and you don't have a modem – well, lucky for you, a Hyundai modem is one of the bargain buys on our mail order pages

continued from page 24

problems you had and see what the reasons were. If you had trouble downloading a file for instance, you can check to see if you spelt the name wrong. Secondly, you can use the log file to read messages you didn't have time for, or to go back over a conversation with the sysop and write down that telephone number.

73 Know your software – Your communications software has been designed to provide you with the facilities to get the most out of your comms work – use it! Get to know what facilities are there, and how they work.

Things like the scrollback facility in *NComm* are particularly useful. A few minutes spent learning how your package works will pay off the first time you need to show the sysop a piece of a message you just read or you want to write down some information offline.

74 Know your BBS – Every minute you spend on-line is another minutes worth of charges. Become aquainted with the boards you call regularly. Take a look around, even at areas you aren't interested in at the moment, and try to remember where all the interesting things are kept. Learn how the file search facilities work; it will make it easier when you need to find that elusive file.

You can use your log files to go back over the board off-line, especially if you are looking for something in particular. Once you know where it is you can go straight to it when you get on-line, saving time and, more importantly, money.

Download the file lists and keep them for later, it is much easier to find a file off-line when BT aren't involved.

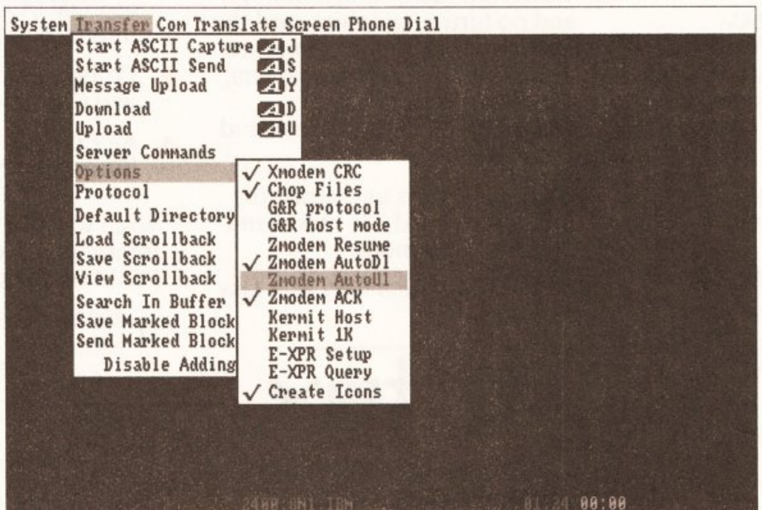
75 Off-line readers – If you are a member of a conferencing system such as CIX or Compuserve, or you enjoy reading the messages on your local BBS then get yourself an off-line reader. Offline readers allow you to read all the messages you want in the comfort of your own home, without the shadow of the phone bill hanging over you.

Although the download size for an off-line reader can be pretty large, often a couple of hundred kilobytes of data, the savings are well worth it and it will pay for itself within a few days of using it.

If you don't read the messages on your BBS, you're missing out on an important aspect of comms, the chance to make new friends, and find out things you never knew you didn't know. Give it a go – you don't know what you're missing.

76 Scripts – If your communications program offers you a script facility, use it. A good script can save a lot of time, and also protects you against accidents such as you forgetting your password.

As you are using a board, think about how scripts could be used to automate processes other than logging on. Downloading files is one particular case in point, where the same information is entered every time the operation is performed and a prime candidate for a script.

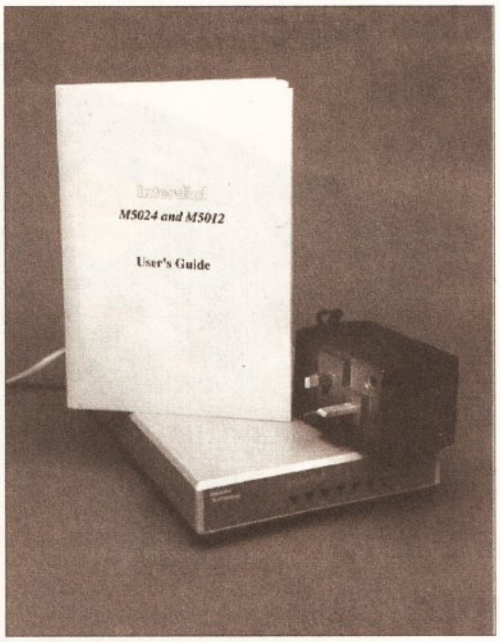


***NComm* is one of the most popular comms packages. But remember a package is sometimes only as good as its user**

77 Stay friendly – Remember, when you are calling a BBS you are a visitor on another persons' computer. That person has kindly spent a lot of their spare time and money to create somewhere for you to call, they don't want you messing about.

Follow these guidelines and you won't upset anyone:

• Be polite. People don't call bulletin boards to be insulted or offended.



The Connections Interdial modem – another favourite. No more muddles with modems when you've followed our top comms tips

Bear this in mind when you are leaving messages.

• Upload files. To be successful a board needs to keep a steady flow of new files. Most sysops will try and do this anyway but if every caller uploads a couple of files a week, the sysop's job is made easier and the board becomes more successful. You'll also be given higher security, more time on-line, and be allowed to download more software.

• Follow the rules. Read and abide by the rules of the BBS. It's not difficult and it will save a lot of hassle.

• Don't drop the carrier unless you absolutely have to. The most annoying thing for a sysop is a user who can't be bothered to log off. Hanging up in the middle of a session can cause problems, sometimes even taking the board off-line.

• Don't hassle the sysop. Don't keep paging the sysop if you have a problem – leave him a message. Even the most friendly sysop will get fed up of being continually paged, and a message will save you money as well.

78 Always hang up – Always hang up when you leave a board. It doesn't happen often but sometimes a bug in the bulletin board software will cause it to not drop you off the line when you exit. You will then end up there sitting on the line clocking up a huge bill.

The most well known example of this is a bug in CIX which after logging you off and telling you to hang up, sometimes places you back at the login prompt. On a multi-tasking machine such as the Amiga it is all too easy to swap to the Workbench screen and begin playing with the software you've downloaded, leaving the comms package sat at the CIX prompt.

79 Don't leave it alone – Comms packages are wonderful, scripts are wonderful, off-line readers are even more wonderful. Unfortunately they are far from perfect. No matter how good you think your script is, you should never leave it running when you aren't around.

It is easy for a stray bit of line noise to upset the script completely. When this happens, one of two things will go wrong.

The most likely scenario is that the script will just stop and stand there clocking up on-line charges until the BBS times out and throws you off. Worse though is the script that wanders off on its own through menus it was never supposed to see, trying to download files and leave messages to people who don't exist.

80 Support your sysop – Bulletin boards are usually run on a voluntary basis.

The system operator gives up his free time, and very often a substantial amount of money, to provide you with a service. Apart from respecting his wishes, uploading files and generally being a nice person, there are plenty of ways you can encourage your sysop.

When you first visit a board, let the sysop know what you thought. Be constructive though, simply saying that you didn't like it is no use. The opposite is true as well, just saying that you liked the board isn't much help. Try and offer at least some suggestions as to why you liked it, and any areas that could be improved on.

Report any problems you may have to the sysop. Particularly things that could be considered "bugs". For instance, if a particular menu option doesn't work, let him know so that he can fix it.

Finally, if the board has a membership scheme, and it's not too expensive, join it. Not many boards do have a scheme but supporting those that do is well worth the little cost. Not only do you get increased access but it encourages the sysop to do more with the board, something that benefits everyone.

USING THE SHELL

Some operations on the Amiga are made so much easier by using the Shell. Some operations just can't be done any other way. Using the Workbench is all very well, but it's only once you click on that Shell icon that you can really get your hands dirty and find out exactly what is going on.

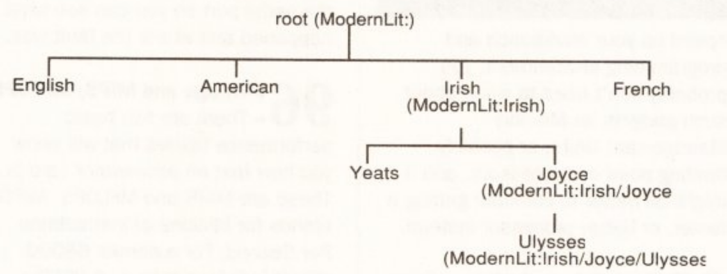
Here we provide a brief introduction; if you need more information don't forget our regular Cracking The Shell column by Mark Smiddy, which covers just about every conceivable use of AmigaDOS.

81 Files – A file is a collection of information stored on a disk. It could be a program, or simply a group of data for use by other programs.

Each file has associated status information stored with it, which records such things as when the file was last altered and whether or not it is a program file. All of the Shell commands are held on disk as program files.

82 Directories – These are the Shell equivalent of Workbench drawers. They are arranged in a hierarchical, tree-like fashion, and may contain further directories and files. Take a look at the above diagram for an illustration of this idea – often it's easier to think pictorially.

At the top of the hierarchy is a directory termed the 'root'. It is denoted by the ':' symbol. The root directory of another disk is specified by the disk name followed by a colon. A directory further down the hierarchy is specified by supplying its name after the colon. If the directory is not immediately 'below' the root, then any intervening directories must also be named, each of them being separated by a '/' character.



Directories are organised in a hierarchical structure often called a 'tree'. In fact, the shape is more like an upside down tree, with the root at the top. The AmigaDOS path to the directories is shown in brackets

83 Dir – Dir is an AmigaDOS command that produces a listing of all the files held in a directory. Normally, the listing is given for the current directory – the one named in the Shell's prompt. Any directories held within the current one are marked '(dir)'.

It is possible to get a listing of files in a different directory by using that directory's name (and those of any others between it and the current one, all separated by the '/' character) as part of the command. If the directory is above the current one in the hierarchy, then the '/' character must be used before the directory name to instruct AmigaDOS to look one level up. Alternatively, the ':' character tells AmigaDOS to look from the root directory on the disk. Precede this with the name of another disk, and AmigaDOS will look there instead for the required directory.

Getting a list of the files held in the Joyce directory, held in the Irish directory, all on the disk ModernLit, would be done as follows:

```
Dir ModernLit:Irish/Joyce
```

It is possible to specify which files you want to list by the means of a wildcard.

Represented by the '#?' characters, a wildcard means 'any characters'. The Dir #? command will behave exactly as normal, but the Dir #?.iff will only list those files whose names end with '.iff'.

84 CD – This command changes the current directory (the one which will be listed with a simple Dir command, and which is named as part of the AmigaDOS prompt).

Followed simply by a '/' character, it will move one level up in the directory hierarchy. Followed by a ':', it will move to the root directory of the current disk.

A directory name can also be specified with CD, but if it is anything other than directly below the current directory in the hierarchy, then a path to it must be specified.

85 Makedir – This creates a new directory inside the current one.

The name of the new directory is specified as part of the Makedir command, but must be separated from it by a space. The newly created directory will initially be empty.

86 Copy – The copy command, funnily enough, copies files. Following the command comes the source file, then, after a space, the destination where the copy should be placed.

Both source and destination can be specified with full AmigaDOS paths. If the name of the destination file is omitted, then the source file name is used. In this case, wildcards can be used to copy several files with only a single command:

```
copy grabs:#?.iff article:
```

87 RAM: – This is the RAM disk, behaving like an ordinary disk although much more quickly and with the information held in memory.

If you are using a single drive machine, it is useful to copy often used commands into RAM: so that you won't have to insert the Workbench disk whenever you use one of these commands, thus saving time and irritating disk swapping.

The RAM: disk can also be used as an intermediary store when copying groups of files from one disk to another on a single drive system.

88 List – This is an advanced form of the Dir command. As well as listing the files in a directory, it will display the status information and size of each file.

The command has many other possibilities. Its output can be sent to another file by use of the command To following it, followed itself by the name of a destination file.

The options available are far too complex to go into here in such a short space – refer to Cracking The Shell each month for more details and handy tips.

89 Startup-sequence – This is a text file containing a number of AmigaDOS commands.

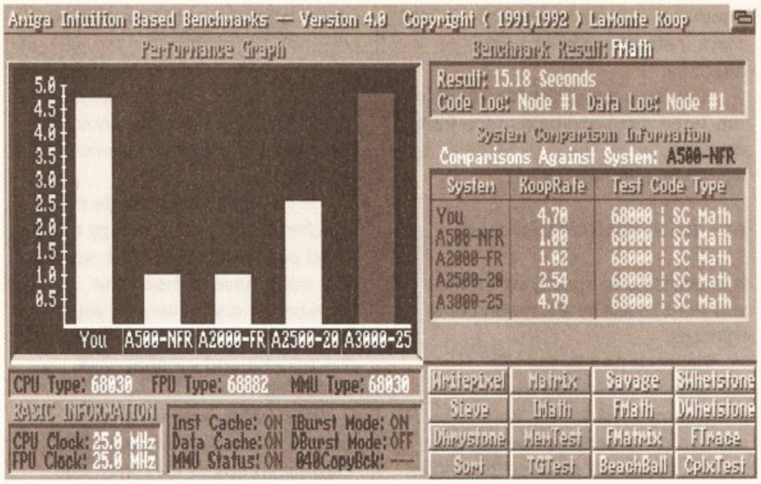
The startup-sequence is a type of file which is known as a script. It behaves in a similar manner to a program when run.

Each of the commands in the file are executed in turn, as if a user were typing them one by one at the keyboard. Think of it as a way of creating your own AmigaDOS commands by joining together existing ones.

The startup-sequence is a specialised script which is executed every time the Amiga is switched on or reset. It performs various set-up functions, such as telling the Amiga which nationality of keyboard to use, and where to look for certain, often used files.

It is possible to modify the startup-sequence, although it's advisable to make a back-up first, using the Copy command (only ever do this with a copy of your Workbench disk, as tampering may stop your Amiga from booting up altogether).

90 Ed – Ed is the AmigaDOS text editor. It is like a very simple word-processor, and is mainly used for creating and altering script files such as the startup-sequence. Just type Ed at the prompt to use it.



The program above is used to rate the speed of your accelerator compared to standard Amiga set-ups, just so you can be sure your machine really is *fast*

ACCELERATORS

Next to a hard disk, your accelerator could be the most expensive add-on that you buy for your Amiga, and in some cases they can be more expensive than your Amiga itself. Consequently, with the huge jungle of different ones you can get, it is vital that you get the right one for you.

The accelerator market can be very confusing, not only because of the range of models, but also due to the range of prices. The cheapest ones start at under £15 for a 68010 chip, and if you have the money it is quite possible to spend over £1,500. With this in mind, I shall attempt to untangle this and make that decision a little less of a headache.

91 Do you really need one? – Accelerator cards are for running high powered applications, such as DTP or ray tracing, much faster. If you just use your machine for occasional word processing, games and perhaps some AMOS programming, it is unlikely that you need a fast accelerator card – your money would probably be better spent on a large hard disk or other hardware add-ons.

92 Consider your needs – You can save a lot of money at this stage. If you do a lot of ray tracing and other processor intensive graphics work then you definitely need a good FPU (Floating Point Unit), either a 68882 or a 68881. If you are on a tight budget and are buying your accelerator to generally speed up your Workbench and programming environment, you probably don't need to worry about such gadgets as Memory Management Units, or possibly floating point co-processors, and it might be better to consider getting a faster, or better processor instead.

93 Hard disk controllers – Quite a few of the A1500/2000 accelerator cards come with built-in fast SCSI hard disk controllers. These are well worth considering if you do not already own a hard disk card – they will be considerably faster than ordinary plug in cards as they are specially optimised to work with the faster processor and faster 32-bit RAM.

94 32-bit RAM – From the 68020 upwards, the processor is 32-bit. This means that it can access a whole 32-bits (4 bytes) of data in one go. All current Amigas except for the A3000 series have 16-bit RAM, which means that whatever the processor is, 68020 '030 and '040 included, they can only ever get 16 bits, 2 bytes in one go - half their potential performance. By spending a little more money on your accelerator card, you can get it with some 32-bit Fast RAM on board. If your programs are running in this 32-bit fast RAM they will run at the full potential of your processor. You really want 2Mb or more 32-bit RAM, preferably 4Mb. If you are not able to afford fast 32-bit RAM on the card, think about getting a card that has the facility for you to add some at a later date.

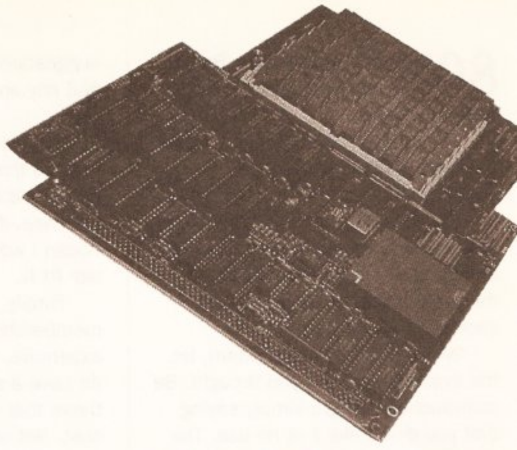
95 MMUs and the 68030EC – Programmers and developers buying accelerator cards need to watch out for the 68030EC and 68040EC chips. The EC stands for 'Economy': to save cost on the chip Motorola removed the MMU (Memory management unit.) The MMU is vital for Virtual Memory operating systems, such as Unix, in which part of your hard disk will act as an extension to your available RAM. The Amiga operating system does not currently support Virtual Memory, but if you intend to buy or use Amiga Unix, then you must avoid the EC chips. Likewise developers may find the MMU useful, as it is able to trap and report illegal memory accesses. Amiga developer programs, such as Enforcer, are invaluable for large Amiga applications development, because, if your program does something naughty, it reports it down the serial port so you can see what happened and where the fault was.

96 MHz-age and MIPS/MFLOPS – There are two basic performance figures that will show you how fast an accelerator card is. These are MIPS and MFLOPS. MIPS stands for Millions of Instructions Per Second. For a normal 68000 chip this is less than 1. A 25Mhz 68040 could manage over 20 MIPS, which would make it as fast as 20 A600s. MFLOPS stands for Millions of Floating Point instructions Per Second.

There are a number of things that affect both these figures. One is the MHz (MegaHertz), or clock speed, of the processor, the other is the availability and speed of 32-bit RAM. As a reference, a standard stock A600 runs at 7.14Mhz, and a stock A3000 at 25Mhz.

To get the best from 68040 cards you really need fast 32-bit RAM (wth 60 or 40ns access time). You would be well advised to steer clear of slow 68020 cards, as for very little extra money you can get the 68030 chip which is far superior.

97 68000/68010 options – These are the cheapest of the accelerator card options. In the case of the 68010 upgrade, it simply involves buying a £15 68010, 8 or 10Mhz version, from an electronic components supplier, removing your existing 68000 chip and replacing it with the 68010. It is a plug in and go option. You will notice a small increase of speed, of up to 20%. There are also several 68000 upgrades, whereby a small card fits in your existing 68000 socket and doubles the clock speed of the chip to around 14Mhz. These cards cost around £200, and their value is doubtful. If you are going to spend this amount of money it may be better to wait for a cheaper 68020 or '030 card.



The G-Force 040 Accelerator speeds up your machine, just as these accelerator tips accelerate your learning curve...

98 The 68020 – The 68020 was the first of Motorola's full 32-bit microprocessors. It is capable of reading a full 32-bits of data at a time if it has access to 32-bit RAM. The chips have an on-board cache, which enables the processor to work much faster on loops and other tight code by storing information in its own internal ultra-fast RAM.

The 68020 is available in clock speeds from 16 to 33Mhz. (Although the 33Mhz version of the chip is brand new.) The 68020 does not ship with a MMU as standard; the Commodore card has a seperate MMU chip on the card, but if you want a 68020 with an MMU from another manufacturer, you will have to check.

99 The 68030 – The 68030 has the MMU built into the processor, although the EC version of the chip has omitted this. It is faster than the '020 chip, having had its instruction speeds sped up.

A 68030 clocked at 25Mhz will run about one and a half times as fast as a 68020 at the same speed. Cache sizes on the 68030 are also larger than the '020. 68030 chips are available at speeds from 16 to 33Mhz, although 40 and 50Mhz versions of these chips are planned. A 25Mhz 68030 chip will manage around 8-12 MIPS and about 2-2.5 MFLOPS.

100 The 68040 – Currently this is the flagship of Motorola's processing chips. Technically it is nearly a RISC chip, as it is able to execute, on average, one instruction every 1.3 cycles. This means that a 25Mhz 68040 chip can

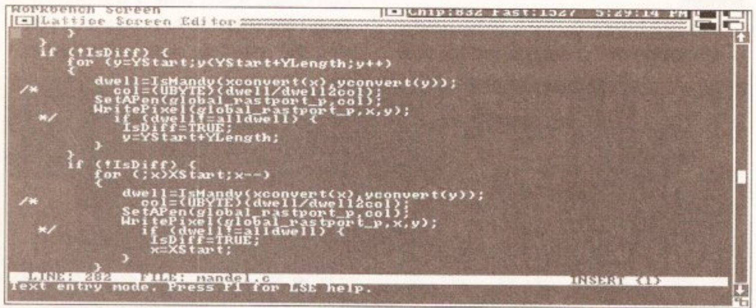
run at about 21MIPS. This is twice as fast as a 25Mhz 68030.

Another advantage of the 68040 is that the FPU is built in. This makes it even faster, as the FPU has been optimised to run at high speeds on the same piece of silicon as the 040 chip.

Unfortunately some of the more complex Floating point operations could not be fitted on, and have to be emulated in software. This is of little consequence, however, as the 68040 chip is so blindingly fast. Motorola also produce an EC version of this chip, without the twin MMUs. 68040 chips are current available at clock speeds from 25Mhz to 33Mhz, giving a maximum MIPS of around 29.

Faster 40 and 50Mhz versions are planned.

C PROGRAMMING



The above Mandelbrot generator is being edited in the LSE screen editor supplied with the excellent *SAS/Lattice C* development program

C may be a brilliant language but unlike languages like Pascal and Modula 2, it does little to guide or force the programmer into adopting good coding habits. All is not lost however because the following tips should put some of those 'potential coding nasties' well and truly out of harm's way...

101 Parameter passing – One of C's greatest strengths is its parameter passing facilities. Design code units that make the most of this facility.

When a lot of data is involved however parameter passing can add a significant overhead so the best idea then is to create structures which represent the parameters and then pass a single pointer to the parameter block.

102 Brevity – Avoid highly compressed code styles like the plague.

Despite the fact that C would allow this code fragment:

```
if(key==ESCAPE)
{
CloseFiles();
DisplayMessage(CLOSING);
WaitToQuit();
}
```

to be written along these lines...

```
if(k==E){CF();DM(C);WTQ();}
```

you'll gain absolutely nothing by doing so in the long run. The code will not run more quickly and trying to understand programs years after you've written them in this type of condensed form would be a nightmare.

103 Re-useable code – Write functions that are generally useful. Re-used code rapidly becomes bug-free code and of course using pieces of existing code in this way reduces the effort required to write your programs.

104 Public domain compilers – Without detracting from some of the excellent work that people put into public domain software you should be aware that in using a public domain compiler you may not be able to place so much dependence on the compiler itself. Rightly or wrongly professional programmers tend, in the main, to assume that a program which compiles without error is syntactically correct. To suggest that they use a compiler where this might not be the case would be extremely disconcerting to them. Public domain software, especially something as large and as complex as a compiler, is unlikely to ever achieve the reliability and stability of a commercial product. If you are using a public domain compiler it is probably wisest to take extra care in this area so that you assume as little as possible about the errors the compiler can catch.

105 Re-useable modules – Modularize and compile units that are generally useful. In the same way that individual functions are more useful when written in a general way so also are precompiled modules that have a well defined interface and this of course takes us into the world of the ADT (abstract data type).

The philosophy underlying the ADT is basically simple: by defining the important, ie useful, properties of an abstract data structure, and defining which operations will be allowed, we can build an ADT description. When translated to real code this 'blueprint' becomes a 'data structure' building block which can be used to solve problems.

By way of an example let's take a fairly simple ADT type, the queue. A queue is a set of objects logically arranged in First-In-First-Out (FIFO) order. The type of operations which can be usefully associated with queue structures are well known... we need some means of initializing, adding items to, and retrieving items from, the queue in the proper FIFO order.

There's not the space to go into internal coding details but that's not particularly important anyway. What is important is that you should aim to create a programmer-friendly interface so that the module can be used without the programmer knowing how it is implemented. The header file given in Listing 1 shows how intermediate macros calls have been used to enable me to work with any size of queue object using just CreateQueue(t), AddToQueue(s,x), RemoveFromQueue(s,x), KillQueue(s) and QueueEmpty(s) function calls...

LISTING 1 • LISTING 1 • LISTING 1

```
/* Queue ADT header */
typedef void QUEUE;

/* These macros are used to create a slightly more friendly
interface to the user. They just remove the need for explicit
sizeof(), casting and address taking operations in the
applications code */
#define CreateQueue(t)   CreateQ(sizeof(t))
#define AddToQueue(s,x)  AddToQ(s,(UBYTE *)&(x))
#define RemoveFromQueue(s,x) RemoveFromQ(s,(UBYTE *)&(x))
#define KillQueue(s)     KillQ(s)
#define QueueEmpty(s)    QEmpty(s)

/* These are the prototypes for the underlying queue access
routines which do the real work */
QUEUE  *CreateQ(ULONG unit_size);
void  KillQ(QUEUE *descriptor_p);
BOOL AddToQ(QUEUE *descriptor_p, UBYTE *data_item);
BOOL RemoveFromQ(QUEUE *descriptor_p, UBYTE *data_item);
BOOL QEmpty(QUEUE *descriptor_p);
```

An ADT queue header that provides simple user-interface functions

106 :Library functions – Maximise the use of standard library functions. The effort which has gone into the Amiga system routines, Lattice/SAS and Manx compiler C function libraries (and many other third-party libraries) is considerable. With the new ANSI standard now firmly established all C compilers support the ANSI specified core routines and, when you have a choice of functions to use, the best idea is to opt for these ANSI forms because it means your code will be that much more portable.

107 Keep it simple – Code in the most obvious way possible to start with: In the early stages of program development there is little to be gained by worrying about run-time efficiency and so forth. Your main aim should be to write code which is a clean, and easily understood, representation of the design or algorithm that you are trying to implement. Go for obviously recognisable variable and procedure names and develop your program in a way which allows each new routine to be tested as it is written (the so called 'incremental testing' approach). Once you've got the program running then by all means make any improvements, or use any additional coding tricks, that you feel are necessary.

108 Nesting functions – Development of routines

using the 'nested function' approach is good in theory but in practice, when many nesting levels are used, the parameter passing overhead that can build up can be significant factor as far as execution speed is concerned. To get speed increases just eliminate the unessential internal calls whilst leaving the function's main parameter interface intact.

109 Assembler patches – Remember that if you use assembler patches you can, with ANSI C get the compiler to check your usage of the patch by creating a suitable prototype. If, for example, you've got a piece of assembler code which represents a GetNextTextLine() function that expects to bė given a pointer to a line of text and returns a pointer of the same type you can force the compiler to check your use of the assembler function using a prototype like this:

```
TEXT *GetNextTextLine(TEXT ↵
*textline_p);
```

110 Pointers – The use, or rather misuse, of pointers can cause programmers serious problems and because of this it's wise to adopt a convention of naming pointer variables using a _p suffix. This obviously doesn't stop potential misuse, but it is a useful reminder that a pointer variable is being dealt with. It therefore goes some way towards helping reduce the likelihood of inadvertant misuse. A fatal, and common, pointer slip involves non-initialization. The programmer declares and uses a pointer variable, but forgets to set it to a suitable initial value (or perhaps sets it to an incorrect value).

With the Amiga many system structure pointers are used. When, for example, an Intuition Screen is opened the OpenScreen() system call returns a pointer to an Intuition Screen structure. This type of system call code:

```
global_screen_p=(struct ↵
Screen ↵
*)OpenScreen(&NewScreen);
```

in most cases would function correctly, ie the OpenScreen() call would set the global_screen_p pointer variable to the appropriate Screen structure address.

The trouble is that, although the code itself is correct, it's not possible to guarantee that this line of code will always work.

Why? It is because the Amiga's system routine OpenScreen() may itself fail – if your Amiga is already using most of its RAM then OpenScreen() will not be able to allocate memory for a new Intuition Screen.

The system tells you this by returning a NULL (zero) pointer rather than a valid Screen structure address. The result? If you did not check for a 'non-NULL pointer' value your program would crash the moment you made use of the global_screen_p variable. It is because of the possibility of system call failures that all Amiga system calls should be tested to see that they have been successful.

HAND SCANNING

Using a hand scanner to transfer images to your Amiga can sometimes seem like a trial and error process. But follow these handy hints below and you'll find that you're getting superb scanning results every time.

111 Picture quality – Choose a suitable picture to scan. The quality of the scan will always depend on the quality of the original image.

It's not true that black-and-white photographs produce better results than colour ones: what's important is the amount of contrast. A good quality, bright and colourful photograph taken in strong light will scan better than a black-and-white photograph of the same thing.

112 The right surface – Always scan on a flat surface. If the surface on which the image is printed is uneven, slippery, or too small for the scanning head to roll over it smoothly, place a sheet of clear plastic or acetate over the image before scanning. If you haven't got a clear sheet of plastic then buy one of those clear A4 paper sleeves that stationers sell, and slip the image inside it.

113 Lighting – Avoid scanning near a strong light source. Because the scanner works by shining its own light on the image and measuring the brightness of the light that is reflected, you must make sure that there are no bright lights shining on the image or the top of the scanning head. Changes in the ambient lighting level can also affect the scanner's performance.

If you are scanning from a book with thin pages, there is a chance that light emitted by the scanning head will be absorbed by dark images on the reverse side of the page. When this happens, turn the brightness wheel up and scan again.

114 Resolution – Scan at the maximum resolution possible. This will usually be 400 dots per inch (dpi), which will produce a large bitmap that can be scaled down to get the best possible resolution from your particular printer.

Amiga bitmaps (IFF ILBMs) have a resolution of 75 dpi, no matter how large or small the picture is.

Scaling not only changes the printed size of the picture, it changes the output resolution. Note that we are talking about output scaling here, not scaling or resizing a brush in an art package.

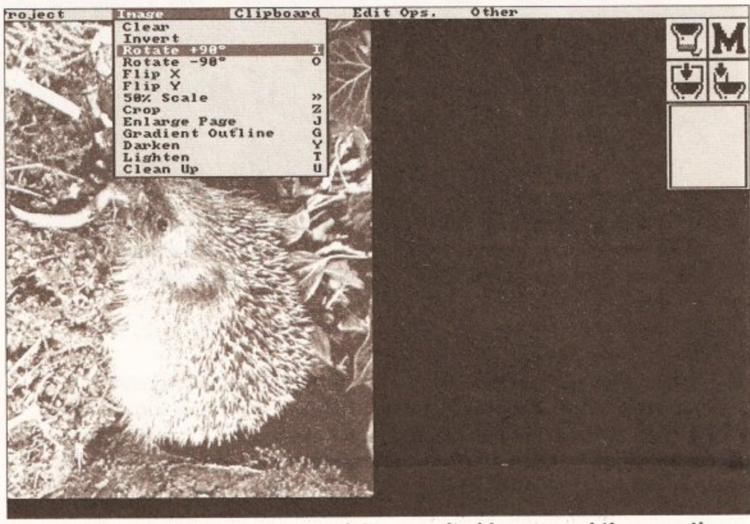
Halving the output size of the picture increases the resolution by a factor of two, to 150 dpi – the image still contains the same number of dots, but they are being printed half the size. Reduce the picture to 25 per cent of its original size and the resolution soars to 300 dpi. This is handy if you have a 300 dpi printer, such as a laser or inkjet, but not if you have a 24-pin dot-matrix or bubble jet printer, which have output resolutions of 360 dpi. To cut a long story short, 360 dpi printers get the best results when images are scaled down to 20.8 per cent.

115 Brightness – For your first practice scan, set the brightness wheel to the lightest setting possible. The best way to adjust the brightness control with software that scans in real-time is to move the scanning head on to the darkest part of the image and roll the head backwards and forwards over this area while gradually decreasing the brightness until the dark area *just* appears black.

Touch-Up users will have to wait between scans for the software to process the image, but the principle is the same.

116 Moving the head – Move the scanner head at a constant speed. Always remember that a single, slow and smooth pass of the head over the image is better than a series of small jerky ones.

As the head passes over the image it is taking in an awful lot of information and passing it on to the computer. If you drag it too quickly it won't be able too keep up with you and the resulting scan will either be corrupted, have bits missing, or appear 'squashed' on-screen.



If the image is too wide to scan upright, scan it sideways and then use the software to rotate it by 90 degrees

117 Pressure – Don't apply too much downwards pressure on the head. The height at which the scan head rolls over the paper has an effect on the image brightness. Pushing the head down on to the paper excludes ambient light from getting in underneath the scanning head, adding to the illumination of the picture, and consequently the amount of light reflected from it. Result? It makes it darker.

So if you press downwards too hard you will muck up the brightness setting that you carefully adjusted.

118 Dragging – Drag the head in a straight line. Use a straight edge to drag the edge of the scanning head against, like the spine of a thick and heavy book – a telephone directory is ideal. The book needs to be heavy so that it doesn't slip if you accidentally push the scanner against it too heavily.

Leaning on the book with your elbow gives it extra stability.

119 Keeping it straight – If you find that the head is still not scanning in a straight line then it probably means you are pressing down too hard. There are two solutions, either ease up on the pressure you are applying or get another heavy book and place its spine on the other side of the head, parallel to the first book. This makes a gully along which you can pull the scanner without any chance that the head will wander.

120 Problems of width – If a picture is too wide to scan but not very high, scan it sideways and then rotate the IFF by 90 degrees. This is illustrated in the screen grab on page 30. Only the Datel Handiscan software is not capable of rotating scans in this way.

If the picture is too high to use this trick, then try scanning the image in two parallel strips and then joining them together.

Scanning two parallel strips is quite difficult but not impossible. Use the spine of a heavy book or even a ruler to guide the scanning head. Try to apply the same amount of downward pressure on the head for both scans and ensure that the ambient lighting level remains the same.

DESKTOP VIDEO

Desktop Video can have a variety of meanings, including using your computer to produce and display graphics and animations, digitising, video titling, multimedia presentation and video production, either on or off the desktop. For me, there are three main ingredients which contribute to DTV success. These are hardware, software and application, which, when mixed together in the right proportions, make for good productions.

121 Quality – Whatever your DTV production, quality should always come first. This doesn't mean buying broadcast equipment – it means using what you have to the best of its ability. But if you are recording to VCR it does mean using the highest quality video tape you can afford, since skimping here will invariably let down even top quality computer output.

122 Planning – Think about your projects. Prepare alternative strategies. Brainstorm. Doodle. Fool around with your paint program or titling software. Work up a storyboard. Determine what you can do with the equipment available and that what you require can actually be achieved. You may need to decide how to put an animation together from various component parts – some pictures here, some 3D work there, and some words from somewhere else. You will often have to find a work-around to achieve what you want and familiarity with production techniques and equipment will pay dividends here.

123 Experiment – Don't be afraid to experiment. If you have a few spare minutes and you're tempted to get blasting with your favourite shoot 'em up, try out a few ideas with *Deluxe Paint* instead. It can be just as much fun working up an idea successfully, knowing that at the same time you are adding to your repertoire and knowledge. The more strings you have to your bow the more ideas and techniques you can contribute to a production.

124 Software – Learn the full capabilities of your software. And be prepared to buy what you need to do the job. If you need high quality titling there's no point in using a lo-res PD program. If you want animation you'll need a program which does what you want. We all have our favourites – I personally like *Deluxe Paint*, *Scala* and *Broadcast Titler 2* for good quality video work, but if your needs are lesser there is plenty good software now available.

125 Colours – If you plan to work on video, colours can be crucial. The lower the standard of video format you are working on, the worse the colours may be affected. Watch out for deeply saturated colours, especially deep blues and reds, as they tend to look very smeary, particularly when transferred to VHS. Try to record your graphics direct to the master video tape to avoid the extra "generations" caused by editing. Don't forget that there is a marked difference in quality between crisp RGB and any composite video signal.

126 Good grabbing – If you plan to grab images from a video camera it's best to mount it on a tripod or copy stand to avoid camera shake. Have plenty of diffuse lighting to illuminate your subject evenly – fluorescents are good for this. Avoid hot spots, as these will tend to "burn-out" the digitised image. If you have a black and white camera you will need to use the colour filters provided with your digitiser to capture colour images. If you are using a colour camera or VCR you'll need an electronic colour splitter to separate the video signal into the red, green and blue components required by the digitiser. The VCR must also have a rock-solid freeze frame or you'll find that the grab is all shook up and looks rather nasty. Digitise in the highest resolution you can, as you can always convert images down the scale, but they won't look good if you need to convert then up.

127 Presentation – In the early days of the Amiga, DTV was confined to simple slide shows of IFF images. Now it's possible to put sound and vision together and play some very complex sequences back, thanks to programs like *Scala*, *AmigaVision* and *The Director*, amongst others. Whole productions can be generated from your Amiga, with the control being handed over to software, and with their built-in transitions such programs can save the cost of putting everything together in a video studio, for all you need now is enough memory and storage space to hold all the components of your presentation. Then you can lay them straight to video-tape or you could even provide them on self-running disks for distribution.

128 The big picture – When working for video applications it's very important to use an overscan screen format for your graphics. Most good software has overscan support these days, though there seems to be no agreement as to what the overall dimensions should be.

Why overscan? Well, if you output a standard Amiga screen to video you'll notice that it doesn't fill the full TV screen. Overscan screens are significantly larger than this standard size, and therefore cover the entire monitor area. A typical example would be an overscan size of 704 x 566, while the normal screen size would be 640 x 512.

129 Fine words – If you are doing video titling you'll need some typefaces. Many programs come with a reasonable selection to get you started, and you can use the ones that came with your Amiga, but inevitably you will need more.

There are many sources of commercial fonts, and a lot of PD ones. Choose large typefaces wherever possible, as they can be shrunk down for more flexibility and they will look better in hi-res modes. Better still, go for Color fonts or anti-aliased fonts. These will impart added slickness to your titles. Or, if you don't need too many letters on screen, design your own titles screens with your favourite paint software.



Screen size is a very important thing to bear in mind when getting into desktop video – see tip 128

130 Watch TV – Television is a free source of DTV knowledge in your own home. Watch business, news and sports programmes, current affairs, wildlife and Saturday morning kids shows. In

fact, watch everything you'd normally watch, but be more aware of how the professional directors on TV do things. You'll be able to pick up quite a few ideas this way and adapt these to your own taste.

TV doesn't have all the answers but it can teach you plenty about presentation techniques. Watch the way they use colour and layout, what kinds of text work well, and what kinds of backgrounds are used. Notice how information is usually presented cleanly and simply, and is easy to quickly digest. Borrow from TV, use ideas you like. You may not get the quality the BBC gets, but you'll be on the right track.

MUSIC *Composition*

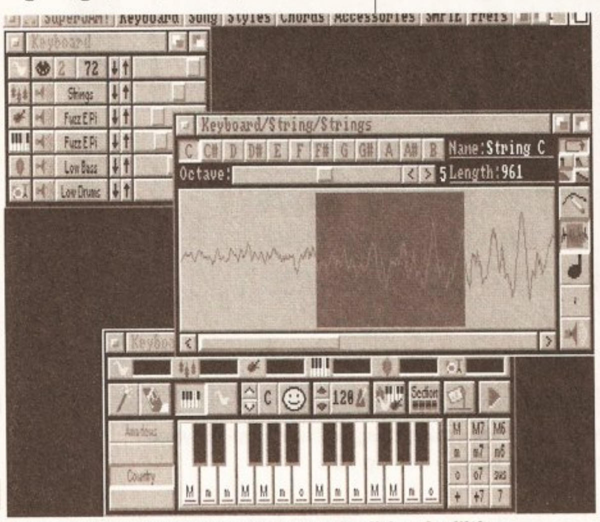
The great thing about using your Amiga to create music is that the whole job becomes significantly easier and almost everyone can achieve good results from the moment they start. Here are some goodies to help all you budding rock-stars out there to get the most from your musical endeavours.

131 Section it off – Create song sections that are meaningful rather than incorporate everything into a large single sequence.

Plan your songs using beginnings, ends, verses, choruses, and so on and label sequences so that their purpose is obvious. If, for instance, you have a song that has a number of different verse sequence variations then call them verse1, verse2 and verse3 and so on.

Most sequencers allow songs to be created in this way and being able to build the final song by linking the various sections together makes it very easy to alter arrangements.

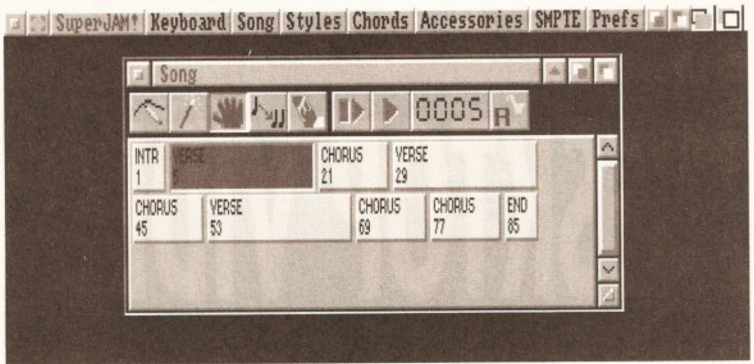
132 Re-useable libraries – Build libraries of your favourite riffs, drum parts or even control sequences, in a form which allows re-use with the minimum of effort. In fact whenever something is created which you think is likely to be of use in the future... isolate the track/tracks of interest and save them separately from the main composition. You can even store single bars of completed songs of various styles containing bass, drums, keyboard data and anything else other than the main melody line. If you collect fragments based on common chord types (major, minor, 7ths, diminished and so on) then you'll be able to piece together backing tracks very easily indeed; read in the appropriate style library's chord bar, protect the drum part from transposition, and then transpose that bar to give the required chord. Clone as many of those bars as needed, then read in the next library fragment and repeat the process ad infinitum. Lazy? Never, after all... you still have to do the transposition and copying operations yourself!



Some of *SuperJAM*'s internal sound editing facilities

133 MIDI channels – Standardise the use of your MIDI channels so that you get used to seeing particular instruments on particular channels (eg channel 1 for drums, 2 for bass, 3-6 for other synth modules and so on). This type of consistency has a number of benefits: firstly, it makes it easy to recognize sequence data, and this leads to fewer silly mistakes when editing. Secondly, it eliminates the need to physically alter the receive/transmit channels of the equipment itself when working with your own, previously arranged, material – this again makes life easier.

134 Voice doubling – Sequencer users can do an awful lot to thicken up poor sounding synthesizer voices. Doubling, where you take a track and duplicate it, and then change the voices so that two different voices play essentially the same notes (perhaps after slightly time-shifting one of the tracks) can improve things no end. IFF sound users can, memory permitting, do the same thing.



Manage your music making with ease – tips 131 to 140 give a sequence of notes guaranteed to tighten up your tunes

135 Choosing your key – If you are struggling with physically playing the keyboard then stick to keys, such as C and A minor, that are easy to play in.

You can always transpose the final song to the required key when it is finished. Don't be embarrassed about this approach – a great many professional musicians who are not primarily keyboard players, but because of their need for MIDI facilities have to be able to 'get by' on the synthesizer keyboard, do exactly the same thing.

136 MIDI file format – Get into the habit of storing your data in MIDI file format.

A great many music programs can read MIDI file data and even non-MIDI users can benefit from the advantages. *SuperJAM* users for instance can create song accompaniments based on IFF sampled sounds and can store the note details of the *SuperJAM* generated composition as a MIDI file. Such files can then be read into sequencers like *Sequencer One Plus* and used as the basis of your own compositions (again using either midi or internal IFF sounds).

137 Tricky ideas – When you are stuck for ideas or your songs are beginning to sound monotonous use a few standard tricks to add some variation.

Having created a reasonable melody or chord progression in one part of the song try things like reversing the theme, mirror imaging the first part of it, or adding a third harmony to the melody line – these types of alterations will all help make the duplicated sections sound more interesting. With sequencers sometimes merely changing the voices, or using the 'doubling' technique mentioned earlier, will be enough to bring additional musical interest back to the piece.

Third harmonies incidentally are easy to generate: With songs written in a major key and just the basic chords of the key being used you can just duplicate the melody line, transpose it upwards by four semitones (thus creating a whole track of major third harmonies), and then flatten the intervals which need to be minor thirds.

138 Control messages – It is best to use short introductory sequences to set up your MIDI instruments rather than embedding lots of program changes, tempo changes and so on, in the early parts of the first music section.

This eliminates possibly unnecessary duplication of control messages when the first real music section is copied but best of all you not only always know where to look to find the initial program change data but you can edit it, or replace the whole sequence, very easily indeed.

It's common to use a one bar sequence containing the high-hat (playing once on each beat) plus the program change events which set up the synthesizers, drum-machines, delay units and so on.

continued on page 34

POWER
COMPUTING

Power Scanner v2.0



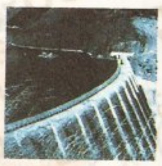
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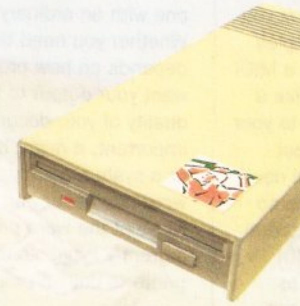


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continued from page 132

139 Sysex messages – Avoid the use of embedded sysex messages in your song sequences because in the main they'll make the data difficult to port (having said that, a few generally recognised sysex messages do exist).

When you get to the stage where you have hundreds of arrangements, then the last thing you'll want is to have to edit all of them just because you've changed one or more pieces of your MIDI equipment.

The best idea is to start as you mean to go on and, if you are intent on making regular use of sysex facilities, isolate the sysex data into a separate 'control sequence' so that, if the occasion arises, it is at least easy to replace or eliminate.

140 Cheat the beat – There is a lot of non-copyright MIDI/music material around in the public domain and very good some of it is too. Similarly lots of synths, sequencers, and drum machines come with any number of pre-programmed demo tunes or drum patterns. Providing you do not steal something clearly marked as copyright there's nothing to stop you borrowing ideas from the examples you hear. Either write it out as a MIDI file or, if it is an external unit like a drum machine then just link it to your sequencer and record the output. Remember though that you will need to maintain proper bar divisions so it'll be necessary to set the external unit up so that it generates MIDI clocks and set the sequencer to 'external sync' so that it uses the externally generated clock data rather than its own internal clock.

WORD PROCESSORS

A word processor is probably one of the most sought after Amiga applications. Just about everyone has a need to write. It may be nothing more than personal notes, or letters to the bank manager. But it may be you have ambitions as a professional writer, or that you have to compile attractive-looking business reports.

The costs and facilities of word processors vary considerably. It's therefore important to have a clear idea of your needs, and of what the various packages supply, before parting with your cash. Here's ten pointers to bear in mind:

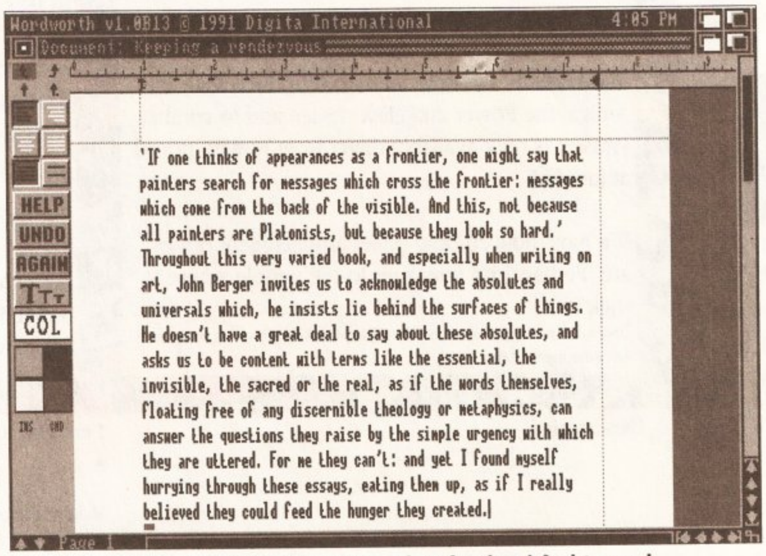
141 Graphics – Not all word processors support graphics, and of those that do, some offer better facilities than others. Before investing in a word processor with graphics facilities, decide whether you really need them. Remember that the primary purpose of a word processor is to help you write. If graphics are important to your work, you may be better off with desktop publishing, which will give you far better control over graphical output.

142 Control codes – These are layout instructions which are sent to the printer. They do things such as change fonts, sizes, switches from bold to italic and so on. If your printer is fairly basic, with only one or two fonts, then control codes aren't that important, but if it has lots of fonts built-in for you to play with, then you'll want a word processor which enables you to send control codes to it to make use of them. If you need to send control codes, be sure that the package you have in mind supports them – most don't.

143 Proportional fonts – These consist of letters which are of different widths, such as the 'i' and 'w' in this text. The standard Amiga font is not proportional – all letters take up the same space on the screen. Some word processors will enable you to use proportional fonts on-screen, and send these to your printer. However, these tend to be slower – updating a screen containing a proportional font is a much more complex process than one with an ordinary bitmapped font. Whether you need this facility depends on how professional you want your output to look. Again, if the quality of your documents is really important, it might be an idea to look at a system comprising of a basic word processor and a DTP package. None of the word processors currently available will support a printer's built-in proportional fonts.

144 Number of documents – If you're doing nothing more than writing letters, you're unlikely to need more than one document open at a time. If, however, you are involved in creative writing, the facility to cut text from one document and paste into another can be invaluable.

Just about every word processor will enable you to have more than one document open at once, but different packages set different limits on how many can be open. Available memory will often be a limiting factor. Bear in mind that programs which make use of colour and graphics in documents will use much more memory for each opened document as well as running progressively more slowly. Being able to type faster than a word processor can display is a real irritation.



***Wordworth* is one of the most popular and professional Amiga word processors, but is it really what you require? Perhaps *you* need DTP?**

145 Spelling checker – All but the cheapest word processors come with spelling checkers. A spelling checker is a pretty useful utility, but it should never be relied upon one hundred per cent to correct your text. Also, don't forget that word processors from American manufacturers will have American dictionaries, in which many words will be spelt 'incorrectly'.

Some of the better word processors have several dictionaries against which they can check your work. With these programs, text will be checked against a dictionary of commonly used words before a larger (and therefore slower) dictionary is consulted. This is useful if you have large documents to check.

Another thing to look out for is the facility to create more than one user dictionary (in which you can enter your own words, unrecognised by the computer's dictionary). Having more than one user dictionary means you can store sets of esoteric words relating to different subjects.

If you intend to create large documents, another good facility is the ability of the spelling checker to go through the whole document before querying any words. That way, you don't have to wait for requester after requester to appear as the checker churns through your text and all the instances of the same word mis-spelled several times throughout the text will be corrected with only one entry from the user.

146 Thesaurus – Not many packages include a thesaurus, but then again not many people need one. Computer thesauruses tend to be pale shadows of their bookish counterparts. Don't let the inclusion of a thesaurus in a package sway you overmuch in its favour.

147 Columns – Some packages enable you to format your text in several columns across the page, which can be handy for producing newsletters and the like. However, if you intend to make a great deal of use of this facility, and you require a good deal of flexibility in the formatting of your text, again you might be better advised to look at a DTP package. The multi-column facilities of word processors are OK, but basic. One thing to look out for is the ability to insert column breaks in your text, giving you greater freedom in deciding which text goes where.

148 Contents – The ability of a word processor to form a list of contents or an index based on user-selected words can be a boon when producing a report or technical documentation.

149 Headers and footers – These are short sections of text that get printed at the top and

bottom of every page. They are useful for just about anything beyond simple letters. Look out for the facility to use different headers and footers for left and right-handed pages.

150 Mail merge – This is the ability of a word processor to take name and address information from a database and place it in a document. This is handy if you intend to use your word processor for business and will be writing a lot of standard letters (those in which the main text is the same for each recipient). Look out for the facility to choose names and addresses from the database according to user-specified sort criteria (only sending letters to people in London, for instance).

3D MODELLING

3D programs have been appearing for the Amiga since it was first launched. One early offering, *Videoscape*, has since evolved into Lightwave, the powerful software which is the heart of the Video Toaster's 3D system. Other programs, such as *Imagine* and *Real3D*, have also been developed extensively over the years, though some, particularly *Sculpt 3D*, have almost faded away. As Amigas become ever more powerful, 3D software continues to push at the boundaries of reality. But whatever the power, 3D requires sustained input from the user. Here are ten tips to help you towards virtual reality.

151 Speed and time – 3D work is very time and memory intensive.

Some serious software now requires at least 1Mb of Chip and 2Mb of Fast RAM just to get started. I'd advise you to add as much RAM as you can – you'll need it. Also add a largish hard disk, because you'll need somewhere to keep your 3D objects and textures, as well as your renderings. And, especially, add an accelerator, the faster the better. Otherwise you'll quickly become frustrated with the snail's pace that your Amiga seems to work at. Of course, while none of these items are obligatory, any serious 3D work, particularly in 24-bit, will really benefit from any or all of the above. A tape streamer might also come in handy for those large sequences of images which will ultimately be transferred to video-tape.

152 Is ray tracing necessary? – The answer is often no. Although many images do look prettier when raytraced, it can be a waste of precious rendering time and the final product may benefit only marginally over a non-raytrace rendered image. Weigh up the benefits of including shadows, refraction and true reflections. Use reflection mapping instead if your software allows, as a simple two or four colour reflection map can make a major difference.

153 Keep cool – 3D modelling and animation requires high levels of concentration and patience. And even then the failure rate can be high. Conceptualising a 3D solid and translating it into a wireframe representation in a 3D modeller can require some bold leaps of imagination. Be prepared for a long learning curve. Patience, practice and regular saves will help keep you out of the 3D straight jacket.

154 Sleep on it – Don't waste precious computing time rendering frames. Let your Amiga do the hard work while you take a well-earned rest. Even with multitasking, 3D rendering can be very time consuming, with frames often taking many hours to complete on non-accelerated machines. So while you dream about reality, let your computer handle your virtual dreams and have them ready for you in the morning.

155 Get converted – Instead of building your object from scratch it is often simpler to take a 2D image and convert it to 3D with a program like *Pixel 3D* or *Race Trace*. Some recent 3D software, such as *Imagine*, have built-in 2D converters, though they can be a little flaky. It's amazing how much time and trouble you can save by digitising or painting a company logo and converting it for that flying logo extravaganza. Don't forget that it's also possible to use a file format converter to transmute an object from one particular format to another. Two programs spring to mind for this – *Interchange* and, once again, *Pixel 3D*. You'll wonder why you wasted all that time before.

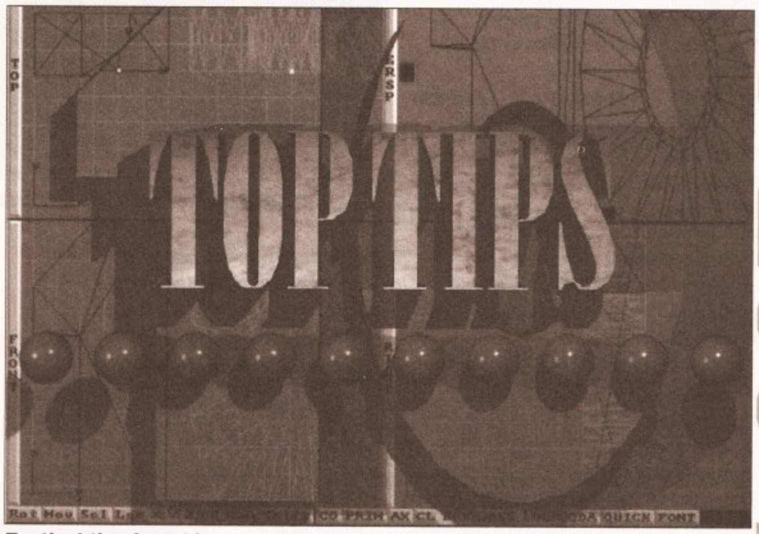
156 Tape or disk? – How you output your work depends on your needs. In most cases the choice will be between video-tape or computer disk. The best quality will obviously be obtained by saving all images and animations on disk and playing them back on an RGB monitor. But for many purposes this is either impractical or downright impossible and video is usually the preferred method, with animations either being played back directly to tape via a quality RGB encoder or genlock or by single frames being recorded consecutively to an accurate, time-code equipped VCR. The frames will usually be of 24-bit quality and the VCR will be a professional model.

157 How many bits? – 24-bit devices undoubtedly provide the best-looking output, but they are expensive, with the cheapest costing around £600 and offering little other than video output. While 16, 32 or HAM colour formats all have their place, they aren't always acceptable for quality 3D applications. Some programs produce animations in proprietary formats for playback directly to tape or monitor, though the size of these is limited by on-board RAM. Another option is to use DCTV, which can play animations back in high-quality DCTV format. Whilst there is a trade-off in quality against 24-bit, DCTV anims are pretty space-efficient and provide a way of getting close to 24-bit motion playback.

158 The world – Understanding the 3D world is paramount. If you don't know where up is, or where your current position is in relation to 0,0,0, then you are quickly lost! Understanding of the notional 3-dimensional space within the software is a must. If you aren't sure about something, pencil and graph paper, Lego bricks, or whatever you need to bring you back to the real world can be a big help. Setting a notional scale for the world is also extremely helpful. As 3D software space has no absolute dimensions you should impose your own measurements. Think in metric, or feet and inches, but stick to one system and you'll have a better sense of scale.

159 Lighting – In most cases at least two light sources are desirable to get a good image. Use a mixture of ambient (environmental) and lamp source lighting. This will at least give you a crude representation of lighting in the real world. In other cases multiple lights are needed.

When you light a scene, think about how light might enter in reality. One light source is often the brightest (the Key light) and the others fill the scene with dimmer light. Less ambient light will give a moodier feel to your image.



Tactical tips for taking your 3D modelling into another dimension. As you can see from this picture, some superb effects can be achieved

160 Pebble dashing – Often it really isn't necessary (or practical) to go to extremes in modelling all the minute details of an object. If your software supports surface mapping you should make use of it as it is a very useful feature. For example, you want to build a row of houses for the background of an animation. By using surface mapping to apply a 2D IFF image of a house front to one side of a simple cubic shape you not only avoid some extremely time-consuming and difficult modelling, but also reduce memory usage dramatically.

PRINTERS

Judging by the vast numbers of printer queries which appear again and again in our *Amiga Answers* mail bag, printers pose a few problems to many of you. That's why we've devoted a massive 20 per cent of out tips to printers...

161 Plugging it in – Never, ever, plug a printer cable into the printer or the Amiga while the printer or the Amiga is switched on. Some tech-heads will tell you there is no problem with doing this, that there is no power travelling along the parallel cable so no damage can be caused, but this not always the case (see tip 162). If you are using a serial printer this tip is especially important because there almost certainly will be power travelling along the serial cable.

162 Parallel port – The Amiga's parallel printer port is not completely standard, it sends power along a couple of lines that standard parallel ports don't use. This is so that peripherals can take their power from the parallel port rather than a separate power supply. *Digi-View* does this, and so do all Amiga sound samplers.

A standard (IBM PC) parallel printer cable does not have these lines connected, and this is the type of lead you need to connect your printer to the Amiga's parallel port. There will be no need to alter such a cable in any way, it will work 'straight out of the box'. But avoid leads that are made out of ribbon cable, it is likely that all the lines in such a cable will be connected, and you will end up frying the printer, the Amiga, or both.

163 Serial port – Connecting a serial printer to the Amiga's serial port is a black art. While the Amiga end (obviously) remains the same, the connections at the other end will be of the printer manufacturer's invention. You will need a special lead; you certainly won't be able to walk into a shop and ask for "a serial lead to connect my Amiga to such-and-such a printer". A lead will have to be made up specially, and for this you will need details of the printer's serial port. These details should be in the printer manual, and you'll need to give this and your Amiga manual to somebody who knows what they are doing.

If the serial lead is wired wrongly, you will at the very least (and instantly) blow up your Amiga's serial port.

164 Bargains – Resist every temptation to buy an old printer at a knock-down price at an auction or car boot sale unless you know for certain that there is an Amiga printer driver for it. You will need to know what popular printer the knock-down printer emulates in order to find a driver. If you're lucky these details will be in the manual under the 'specifications' section, otherwise you'll need to phone the manufacturer and ask. Then comes the frustrating task of finding a driver that works with that emulation.

If you buy an old, manual-less serial printer at an auction you have almost certainly thrown money down the drain.

> **"Resist every temptation to buy an old printer at a knockdown price at a car boot sale."**

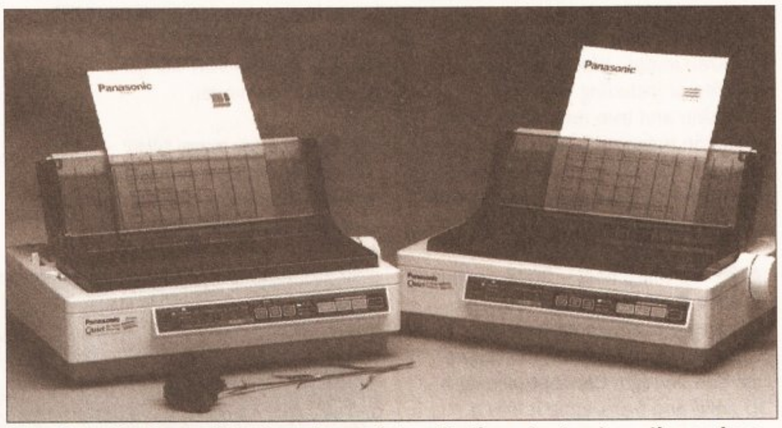
165 Compatibility – When buying a new printer, ask the retailer if that model of printer will work *100 per cent perfectly* with the Amiga. Ask which of the supplied Workbench Preferences printer drivers you should use. And then ask to see the printer working in both text and graphics mode with the Amiga. Don't accept printed output from under the counter as proof that it works, you want to see it working for yourself.

If the retailer's response to any of these questions sounds at all nervous, assume that the printer will not work properly with the Amiga because there isn't a specific printer driver for it.

Repeat this process with as many retailers as it takes until you find one that knows what it is talking about.

166 Claiming your rights – When buying a new printer, make the retailer write "For text and graphics use with the Amiga" on the receipt.

When you find out it doesn't work properly you can return it and ask for your money back because the printer does not do the job you bought it for, as written down by the retailer on your receipt. This is your statutory right as a consumer.



Don't settle for anything less than print perfection – test out our tips and see your printing improve in leaps and bounds, whatever your printer

167 Profusion of Ps – If you are getting Ps or other weird characters printed at the top of the first page of every printout, check that you have a current version of 'printer.device' in the DEVS directory of the disk you booted from.

Open a CLI or Shell to full screen size and enter the command line:

```
TYPE DEVS:PRINTER.DEVICE HEX
```

Press the spacebar once to halt the listing before it scrolls out of the window. About half way down the page, on the right-hand side, you'll see a version number, followed by a date. Your version should be at least 35 point something, and dated 1988 or later. The version of printer.device distributed with Workbench 2.04 is V35.603; the version distributed with Workbench 1.3.2 is V35.563; with Workbench 1.3 it was V35.562. All these versions should work OK.

The version of printer.device distributed with Workbench 1.2 was V33 (Revision 132), and is the one that is causing some programs to print out strange characters at the top of pages when used with Workbench 1.3 or later.

168 Epson emulation – If you are getting strange results from an Epson compatible printer and an Epson compatible printer driver that are supposed to work together perfectly, check the printer manual to see if the printer has an IBM emulation as well as an Epson emulation. If it does, check the printer's dip switches to make sure they are set for Epson emulation. This may sound like an obvious tip, but printers that the manufacturer is aiming at the "professional" (ie PC) market almost always come set-up for IBM emulation.

169 Ribbon ink – Never use Quink or stamp pad ink (or anything else like that) to re-ink a monochrome printer ribbon. And for heaven's sake don't let anybody convince you that it is OK to use WD40 or any other type of 'duck' oil.

Proper ribbon ink contains a special type of lubricant that not only helps the pins in the head move in and out, but also transports the large amounts of heat generated by the pins away from the printer head. If the pins get too hot they become brittle or soft and are liable to snap or bend a little bit and get stuck. The classic symptoms of this are very noticeable horizontal white lines on graphics dumps, and bits of letters going missing in text printouts.

There is proper stuff available, called Re-inK, that will re-ink between 20 and 100 ribbons, depending on the size of your ribbon. It costs about £12 per "future friendly" spray can. For more details call the Re-inK help line on 0202 666155.

170 Refill kits – Inkjet printer owners can save money by buying re-fill kits instead of new cartridges. There are various companies selling these kits, Systems Insight (0707 276913) for example, which cost about £20 and normally include a syringe and enough ink for about five re-fills. Colours are also available.

171 Technical line – If you are having bad problems with your printer, it is always worth calling the manufacturer's technical help line. These lines tend to be quite busy, so you may have to call quite a

few times, or hang on the line for a while, until you can get to talk to somebody.

In my experience I have found the following companies to be especially helpful, and most of them know quite a bit about the Amiga and Amiga applications: Star (☎ 0494 471111), Citizen (☎ 0895 272621), Canon (☎ 081 773 3173), Brother (☎ 061 330 6531), and Facit (☎ 0634 868000).

172 Being nice – Strictly speaking, printer manufacturer technical help lines are for the use of printer dealers and distributors, not for customers, but if you catch them on a good day and you throw a few compliments around, you'll be surprised how helpful they can be. If you steam in with the "it's your legal responsibility" approach, or explain to them that "this phone call is costing me a fortune", expect to be politely requested to take your problem to the dealer from which you bought the printer.

173 Deksjet owners – DeskJet 500C owners will be pleased to hear that the latest version of *TurboPrint Professional* comes with a DeskJet 500C driver.

If you've already bought *TurboPrint Professional* and want an update you will need to contact IrseeSoft direct. The address is on the back of the manual.

If you own a DeskJet 500C and are considering buying *TurboPrint Professional*, do ask the retailer, before you buy, if this is the version that comes with the DeskJet 500C driver.

174 PostScript support – If you are considering buying a laser printer, think long and hard about whether to buy one that supports PostScript.

While the cost of the printer will be slightly more, there are enormous advantages to using PostScript over LaserJet emulation, not the least of which is the fact that there are no proper LaserJet II or III Amiga printer drivers yet.

175 PostScript software – Before buying a PostScript printer keep in mind that the software you are using must also support PostScript, and that if you want to use the printer to create A4 desktop published pages then 2Mb of printer memory is a realistic minimum. If your A4 pages use lots of downloaded fonts (as opposed to the 35-ish fonts that will be built into the printer), then you will need more printer memory.

Also, make sure that the implementation of PostScript inside the printer is a modern version and 100 per cent Adobe standard, some aren't.

176 Colour separations – If you are outputting PostScript colour separations, remember that the screen frequencies (lines per inch) and dot angles are extremely important. *Professional Page* users should note that the default values supplied in the Output PostScript requester are not "suggested" or "tried and tested" values, they are simply arbitrary numbers.

Screen frequencies and dot rotation angles *must* be discussed with the bureau which is doing the films for you, otherwise you'll end up paying for wasted films and time on the imagesetter.

If the bureau doesn't understand what you are talking about or says or implies that "it doesn't matter", go to another bureau toot-sweet.

177 Page width – The PostScript page width is very important. If you specify a width of PostScript page wider than that which the bureau's imagesetter can handle, most imagesetters will happily accept the input... trundle, trundle, trundle... but will output nothing. However you will still have to pay for the time on the imagesetter because it was your mistake.

The maximum width of film imagesetters can take differs depending on the model of imagesetter being used. You *must* ask the bureau what width of PostScript page you should use. Remember that if you want cropping and registration marks, these marks will be printed in the area between the edge of the physical page and the edge of the PostScript page.

> **"Catch them on a good day, and you'll be surprised how helpful manufacturers can be."**

178 Pantone colours – *Professional Page* users should note that each Pantone colour used requires a separate film and plate – and that's as well as the four plates for the cyan, magenta, yellow and black separations.

Don't assume that the bureau knows or understands about the Pantone colour system. Ask beforehand or you'll end up having an argument about whose fault the 'mistake' was.

And unless you have deep pockets, ask about the cost of using Pantone colours before the bill gives you a heart attack.

179 Printer trouble – If after telling an application to print something, nothing happens and then after about 30 seconds a "Printer Trouble" system requester appears on your screen, this means the printer driver has been trying desperately to send data to the printer, but the printer has not sent back a message saying that it has received that data.

This could be due to several things... Is the printer switched on? Is there paper in the printer? Has the paper jammed? Is the printer on-line? Are you using a proper printer cable? Is the printer cable plugged in? Are you using the correct printer driver?

180 Opening the printer device – If when trying to print you end up with a "Cannot open printer device" system requester, this (normally) means one of two things. Either some other application that you are multitasking is using the printer (and therefore already has the printer device open), or some required system files are not where they should be. Luckily both these problems are easily remedied...

This mostly happens when you create your own 'boot-up' disks and forget to copy the 'printer.device' or 'parallel.device' file into the DEVS directory of the boot-up disk, or you've forgotten to copy the printer driver into DEVS/PRINTERS on the boot-up disk.

The answer to this problem is to work backwards. Instead of creating a boot-up disk from empty, copy the Workbench disk, remove the files and directories that you do not need, and then copy your application on to the copy of the Workbench disk. Do note, however, that unless you know precisely what you are doing, you should leave the DEVS, L, LIBS, S and SYSTEM directories exactly as they are.

continued on page 40

PRINTER DRIVERS

This is a list of popular current printers for which there are known printer drivers that work perfectly and take full advantage of the printers' facilities, in cases where the software that is doing the printing allows. It is certainly not a complete list, but we get more letters about these models of printers than any others.

None of the drivers in this list come with Workbench. *Citizen Print Manager* is available from Citizen (☎ 0895 272621), all the others are on various Jamdisks, available from *JAM* on ☎ 0895 274449.

Note that at the time of writing there are no proper Amiga printer drivers for the Hewlett-Packard DeskJet Plus, DeskJet 500, DeskJet 500C, LaserJet Plus, LaserJet II, LaserJet IIP, LaserJet III and LaserJet IIIP. If this fact annoys you, phone Hewlett-Packard (☎ 0344 360000) and give its technical boffins an ear-bashing, then phone Commodore (☎ 0628 770088) and give the people there an ear-bashing too.

It should also be noted that Canon, Star and Citizen have gone out their way to ensure that there are Amiga printer drivers for at least some of their current models.

PRINTER MODEL/S	DRIVER NAME
Canon BJ-10e/10ex	CanonBJ10
Canon BJ-300/330	CanonBJ300
Canon BJC-800	coming soon
Canon LBP-4/8	CanonLBP
Citizen printers	Citizen Print Manager
Commodore 1550C	Star9Plus
Epson FX-850/1050 (or emulation)	Star9Plus
Epson LQ-850/1050 (or emulation)	EpsonQPlus
Epson LQ-1000/1500 (or emulation)	Star24Plus
Epson LX-850 (or emulation)	Star9Plus
NEC 24-pins	Nec24Plus
Panasonic KX-P1123/1124	PanasonicPlus
Star LC-200	Star9Plus
Star LC24-10/15	Star24Plus
Star LC24-200	EpsonQPlus
Star SJ-48	Star24Plus
Star XB24-10/15	Star24Plus



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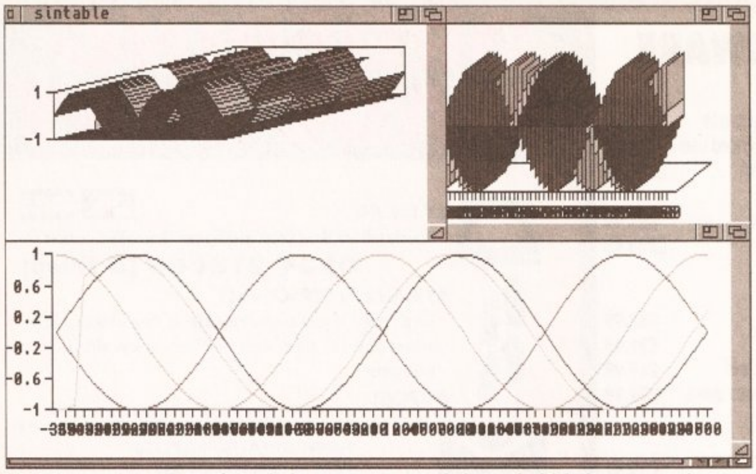
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The above shows a series of sin waves rotated through 180 degrees – the message to be learned from this is to keep it as simple as possible

Setting up a SPREADSHEET

Devising a spreadsheet for any particular application is one of the most arduous tasks a beginner can be faced with – but with some careful planning, it need not be as complex as you might imagine.

181 Basics – To begin with, you must have a basic idea of what the sheet is meant to do. Most spreadsheets can be configured in countless variations – but it is important to lay down a few ground rules before starting out. Three things are required:

- What values you have available.
- What results you will require.
- The formulas required to turn A into B.

The actual maths involved in the calculations will be handled at great speed by the sheet, but it can only follow the rules you enter into it. If you start with the prerequisites described above, you will find designing the sheet will be a breeze.

182 Add Up 1 – One of the most common jobs a spreadsheet is called upon to do is to add up the entire contents of a column or row: you might want to add up a column of numbers for example. The most obvious way to do this is add each individual cell in turn, viz:

A1+A2+A3+A4+A5+A6

However, most spreadsheets will allow you to add up a sequential series of cells such as this with the SUM() function. Cell referencing techniques may change @SUM(A1..A6) or =SUM(A1:A6) for instance, but it means the same thing.

183 Add Up 2 – The tip described above uses a technique called "cell relative addressing" or "cell relative referencing". This just means the cell addresses are not fixed and if you want to add an extra row between, say A3 and A4, the formula:

@SUM(A1..A6)

will change to:

@SUM(A1..A7)

The extra row is accounted for automatically in this calculation and all others affected. This is, of course, one of the advantages of using a spreadsheet. However, the benefits of using "absolute referencing" should not be ignored. In this case cell references always point to the same cells. You would use this in a cashflow (for instance) to calculate the difference between the total income (B8) and total expenditure (B20) plus the balance carried over (A22): A20-A8+A22

If you should add an extra row or two, the relative references will be corrected by the sheet, so the formula might change. Adding a row at A12, would change this formula thus: A21-A8+A23.

184 Cut and Paste 1 – The fastest way to create a basic sheet for simple jobs such as a cashflow is to create an entire column manually, copy it, then paste it into the remaining columns.

Any column specific (monthly headings etc.) alterations should be made later. In *Procalc* the keypress A-V is a shortcut for Paste...Relative – to automatically resolve cell addresses. In *Advantage* you must use the menu option Paste...Relative. The shortcut A-V (menu Paste...Full) is absolute and does not resolve the references.

185 Cut and Paste 2 – The paste function in *Analyse* is more comprehensive than either *Advantage* or *Procalc*. In this system you can copy a single cell to a range of cells – *Analyse* will resolve all the cell references automatically. Follow these steps:

a) Click on the cell (formula) to copy.
b) Press /RC. (Menu: Range...Copy).
c) Press Return to confirm the selection.
d) Move the cursor where you want to copy TO...
e) ...and press "." to hold the first cell.
f) Move the cursor to mark the entire block.
g) Press [Return] to complete the operation.

The same technique can be used to copy a row or column. Select the row as described above. Move to the first column/(row) you want to fill and press ".". Move the cursor to block out the entire selection and press Return. The copy and paste areas need not be the same size.

186 Basic charting – Most systems offer a large number of complex graphics – but for most purposes a bar or a line chart will be quite sufficient. Automatic systems such as *Advantage* and *Procalc*, while easier and faster to use suffer from labelling problems. Therefore, either keep the label names short, or, reduce the amount of data shown on the graph. If you're printing graphics on an impact machine, keep them simple to save wear on your print head and *your* nervous system.

187 Automatic chart parsing – This suffers from two major bugbears. First the data can be read in one of two directions: by row or by column. This can cause all kinds of bother when you produce say a pie chart and it only has one segment. In this case change the parsing from Row to Column or vice-versa.

By the same token, automatic scale labels are read from the respective rows and columns above and to the left of the selected data. If you need to produce a chart of some specific data, copy it (values only for speed) and its respective labels to a separate area on the sheet and take a chart from there.

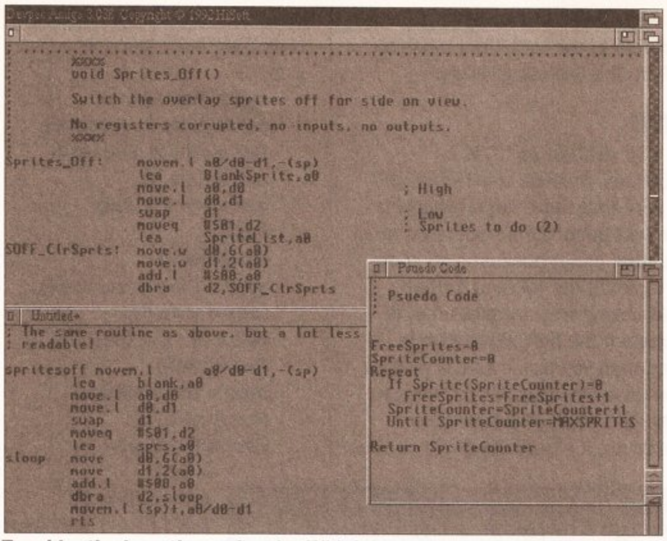
188 Formulas – Always keep formulas simple! Always prefer an internal function to one constructed from separate functions. This will help keep the sheet's recalc time down to a minimum and makes it easier to understand. If you must use a complex formula, break it down into smaller chunks and hide the intermediate results elsewhere on the sheet.

You can hide intermediate values on some spreadsheets by changing a range of cell's pen colour to the background colour — use this as a last resort though. Keep a separate "sheet" of any special formulas you devise so they can be copied-in whenever they are required.

189 Show negative results – Most spreadsheets have a feature to allow you to highlight negative values. *Advantage* and *Procalc* do not: you must use a function instead although this is more powerful. Assume you have a row of results A20...G20 and wish to highlight any negative values. The following function should be entered into any spare cell below in column A: SETCOLOR(A20<0,2,3,A20) and then pasted relative (A-V in *Procalc*) into all the cells through to column G.

The colours are determined by the two centre numbers. Also, the cell highlighted need not be the one checked. A similar technique is available using the SETSTYLE function. This uses binary values to set one of seven available styles — consult your manual for more information.

190 To Transfer Data – The simplest way to exchange data with other spreadsheets – either on the Amiga or other systems such as PC and Macintosh – is to save the file in *Lotus 1-2-3* format. Major packages such as *Procalc*, *Advantage* and *The Works* all support a major subset of the Lotus file format and this is generally the most effective method. Other methods such as DIF are less reliable. If you are sending your sheet to a database package use CSV (comma delimited) if this is available.



Two identical sections of code. Which looks best to you? Learn how to make your code more productive with tips 191 to 200

ASSEMBLER *Programming*

Assembly language programming on any machine can turn into a complete nightmare if you are not careful. Programs, by nature, are naturally longer and seemingly more complex. But if some simple guidelines are adhered to, it can be a very productive choice of programming language. Here are some suggestions which you can follow and build on.

191 Development tools – Make sure that you are using the right software and utilities. I recommend Hisoft's excellent *DevPac 3*, written to look and work well under the 1.3 and 2.04 . It also comes with the full 1.3 and 2.04 Include files as supplied by Commodore and a powerful monitor/debugging tool– *Monam*. It also comes with a linker and other utilities with a comprehensive manual and after–sales support.

192 Back-ups – This cannot possibly be stressed enough. Regular and organised back-ups of your code protects you against unfortunate incidents with your floppy or hard disks. It's so easy to save files under the wrong filename – in a puff of smoke your 10,000 line source code file can miraculously become a copy of your startup-sequence! It's good to use automatic or timed back-ups if you can, or save files under different filenames. Back-up to a separate place (another disk or partition) regularly if you are working hard on your software.

193 Labels and comments – Assembly language programs are notoriously bad to read. They are much longer than programs in other languages due to their simplicity. It is easy for even the simplest utility to grow to over several thousand lines. It is important that you use sensible label names and comment your code. The illustration shows two identical segments of code, one is well commented and labelled. Which one would you rather have written? Labels such as Loop1, Loop2 Loop3 and so on are almost meaningless. Document routines too, with input and output parameters and the registers that they corrupt.

194 Program organisation – Structure your program. If you can, separate your set-up and close-down routines, such as AllocateMemory and CloseLibraries. Keep all routines and subroutines specific to a particular subject together. For instance, keep all your set-up routines in one place. This helps you to find your way round large source files quickly. If you know you need to check something in the graphics routines, for example, you know that they are together. It makes debugging and development easier.

195 Correct Include files – Use the correct Include files. If you are writing Amiga assembly language code, you will need to use some of the Amiga library routines. It is easy to pepper the start of your programs with lines such as "CloseLibrary = -414". This is a bad thing to do. Use the official Include files, this reduces the things that can go wrong with your program, and makes debugging easier. The same applies to operating system label names. Try to avoid having tables of numbers at the start of your program defining things such as "CUSTOMSCREEN". Simply include the correct files, and all of these things are then defined for you.

196 Obey the rules – This should be carved in stone and stamped on the foreheads of all Amiga developers. Commodore has laid down a comprehensive set of rules and guidelines for your Amiga programming, designed to make your programs more efficient and easier to write. They are also designed for future compatibility with improved operating systems and video hardware. The primary reason why software (games, applications and PD products) broke when Commodore released Workbench 2.04 was because of people failing to obey these rules. Commodore had to spend additional time developing Workbench 2 to minimize incompatibilities. Amiga development is on-going! Obey the rules now, and your software will work on future versions of the operating system.

197 Books and documentation – I would recommend you have at least one 68000 reference manual, not specific to the Amiga, talking about the 68000 series of chips, and detailing the individual instructions in the processor, including descriptions of the additional features present on the 68010, '020, '030 and '040. Although the official Amiga documentation is expensive, it is worth its weight in gold. Programming hints and guidelines are present in the books, and are written by the people who have developed the operating system itself. The official Amiga documentation will not teach you how to program assembly language, it will show you how to use your assembly language skills to their best on the Amiga system.

198 Processor specific code – Don't use it without thought. This one should be under the obey the rules tip, but I shall detail a couple of things which you should bear in mind when starting developing 68000 assembly language programs. Many 68000 programming manuals show how to create delays by executing loops lots of times. This is very bleak indeed, as a delay routine that takes one second under a 68000 may execute in a millisecond on a 25Mhz 68030. This is another of the reasons that software which works fine on an A500 fails to function on an Amiga 3000. Instead, create your timings in a non processor-specific manor, such as counting vertical blanking gaps, or using the CIA timers (preferably with the timer device, but if this is not possible, remember to ask the operating system for a CIA timer before you simply use one!)

199 Design – Work out what you are trying to do before you do it! You may find yourself with spaghetti code – which is worse with assembly language programs than with other languages. It's always a good idea to sit down with a pen and a piece of paper initially to scribble down some ideas, possible screen layouts and so on before committing yourself to code. The same applies to complex or long routines. Sometimes it can lead you to discover even better ways of doing things that you would not have thought about otherwise. Pseudo code is also a good starting point, see the third window in the screen shot for an example. This is not real code, and is not intended to run – it's an easy way of getting the basic gist of how a routine will work, and is a good starting point for coding.

200 Debugging – It's unlikely that you will be able to write a bug-free Amiga application. Debugging can be by far the longest part of software development if your program design and layout is not up to scratch. If there is a fault in your program, you need to isolate it. Reduce the code you need to wade through to the smallest possible chunk. There are many ways of doing this, you could step through your entire program, or, more sensibly, narrow it down by putting indicators at certain points in the program so you know how far the code got before went wrong. These indicators can range from the simplest, such as flashing the screen a different colour, to printing messages on the screen saying things such as "I got to the memory allocation routine OK", or "I opened the serial device successfully." If you have access to another computer with a serial port, you may like to refer to the section on RomWack in the Amiga Libraries book, as this can be helpful for finding what went wrong after a software failure (Guru meditation). AS

Can't find my way h0me

In part two of this introduction to Prolog, Philip Gladwin shows you DCGs and cuts, and naturally, processes some language. Plus: part two of the Route Finder

This month I'm going to finish off the discussion of Prolog's syntax by looking at lists, and at controlling backtracking. I'm also going to sketch details on writing an English language grammar, followed by hints on navigating a node network (that's roads and road junctions for the imaginative among you).

[L,I,S,T,S]

The list is the primary means of data storage in Prolog. As SBProlog is interpreted you don't have to worry about which data types you are using, so lists can be lists of anything: numbers, mixed with atoms and variables, or predicates, or other lists – even empty lists. Lists are indicated by the use of square brackets:

`[atom,1234,foo(bar)..]` – there is a standard way to refer to them. We say that a list has a head – the first element in the list, and a tail, which is a sublist made up of all the other elements in the list. Figure 1 illustrates this.

How do lists work? Well, if you want to add an element E to a list L you push what is already in the list into the tail, and insert the new element in at the head: [E|L]. Simple. Deleting an element from a list is a little more complicated, and requires code. There are two cases when deleting an element from a list: if E is the head of list L, the result after deleting E is the tail of L. On the other hand, if E is anywhere in the tail, you should produce a tail with T deleted from it. Look at some code which does this:

```
delete(E,[E|Tail],Tail).
delete(E,[X|Tail],[X|NewTail]
):- delete(E,Tail,NewTail).
```

Try drawing out a trace of what happens when you call it with the query `delete(s,[a,s,d],Result)`. (Hint – `Result` should = `[a,d]`).

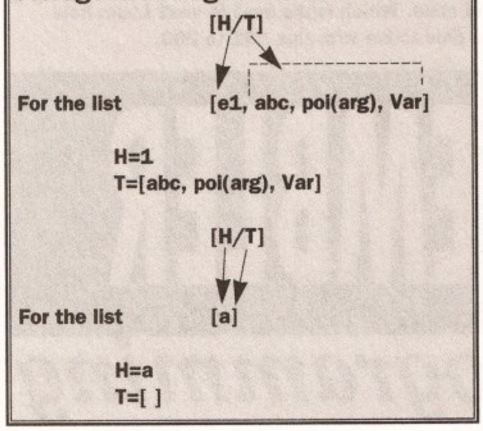
SBProlog comes with an excellent set of library functions, including plenty stuff for messing about with lists. However, delete is not one of them, so you may find the above useful. The predicates built into the interpreter are indicated in the source code by beginning with a '$'. The library predicates loaded by the interpreter – in the same way that it loads your source files – are not labelled in the same way, but if you can't find a definition of a predicate in my code then it has to be from the SBProlog library.

CUT!!

The Cut, (written as '!') is a procedural directive used when you are sure that the bit of proving you have just done should not need to be repeated, either because you know the result to be true and further backtracking would waste time, or because if the first alternative is wrong then you don't want any other alternative to occur. It commits you to the line of proof that you are already on; if any of the goals on the right of the :- fail then you cannot try another version of the goal to the left of the :- . For example:

```
LINE 1 a:- b,c,d,e.
LINE 2 a:- f,g,h.
LINE 3 b.
LINE 4 c.
LINE 5 c.
LINE 6 d:- x.
LINE 7 f.
```

Figure 1: The main method of data storage in Prolog... The List



In the normal path of execution, calling the predicate `a` would make Prolog try to prove it by stepping through all the goals on Line 1 – so it would call in turn predicates `b,c,d` and `e`. If all of these predicates succeeded, the execution would stop there, and `a` would be taken as proven. If, as in this case, predicate `d` failed, Prolog would begin to backtrack. This is where it gets a little complicated. The trace of execution looks like this:

```
/ ?- a.
    call a (line 1)
    call b (Line 3, succeed)
    call c (line 4, succeed)
    call d (line 6)
    call x (no x's, fail)
    d fails
    (backtrack)
    retry c (line 5, succeed)
    retry d (line 6)
    call x (no x's, fail)
    (backtrack)
    retry c (no more c's)
    (backtrack)
    retry b (no more b's)
        a fails
        retry a (line 2)
        call f (line 7,succeed)
        call g (no g's, fail)
        a fails
No
| ?-
```

Now look what happens to the same trace if you alter the code by inserting a cut in LINE 1:

NEWLINE 1 `a:- b,!,c,d,e.`

The trace now looks like:

```
| ?- a.
 call a (newline 1)
 call b (Line 3, succeed)
 call c (line 4, succeed)
 call d (line 6)
 call x (no x's, fail)
 d fails
(backtrack)
retry c (line 5, succeed)
retry d (line 6)
call x (no x's, fail)
(backtrack)
retry c (no more c's)
(can't backtrack past !)
a fails (! has committed you to
the first line, you are not
allowed to try any other a's, so
the call to a stops here.)
no.
| ?-
```

AND SO TO CODE

Look at the code you have been supplied with this month: it is divided up into four main sections. The first predicate, **go**, is the controlling predicate; you call this one to run the program. The other three sections, nlp, lang and route preprocess your input; parse your input, checking that it is a question and extracting the important information; and find the shortest route between the two nodes you have requested. Let's look at the preprocessor first.

`dbclear` initialises the bits of Prolog's internal database we're going to be using later. `get_query/1` takes the question from the user, and breaks it up into a list of words. `prepare/1` takes this list, checks that each of the words is in the vocabulary (declared in last month's code section), and *asserts* the fact that the sentence

RUNNING THE PROGRAM

To load source file into Prolog you ask it to 'consult' it. There are two ways of doing this at the `| ?-` prompt : type either `consult(filename).` or use the shortcut and type `[filename].` When it has looked at your code, run the program by typing go. Enter one of the two types of query at the prompt:

`"give me a route from <node> to <different node>"`

`"how do i get from <node to <different node>"`

Enter the queries as they appear here – including all the lower case letters, the quote marks, and the full stops, but substituting your preferred node in between the angle brackets. About 30 seconds later you should have some result. You can tell when Prolog has finished, because it will echo 'yes' or 'no', depending on your query's success, and return you to the `| ?-` prompt.

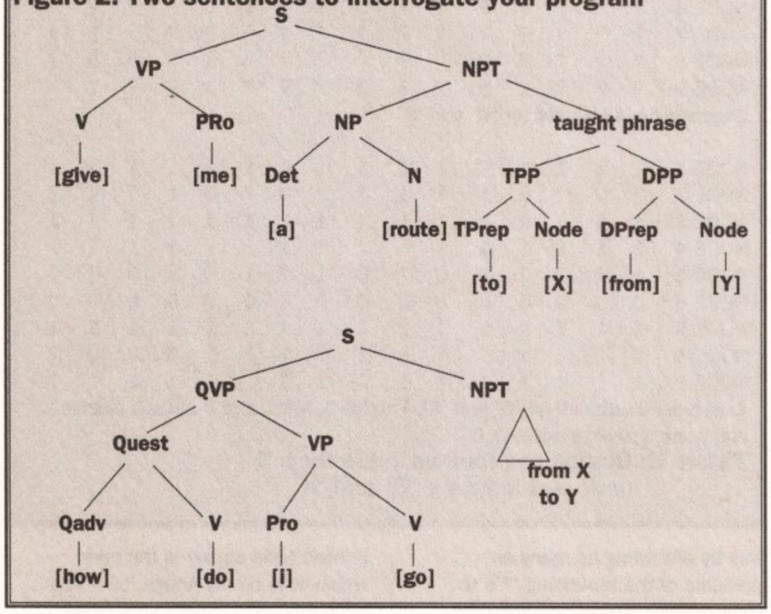
contains each word into the database. Note that the character; is to be read as 'OR'.

Moving to the first of the predicates in the lang section; `s/3`, let's sidestep for a moment to look at an Artificial Intelligence type formalism called a DCG, or definite clause grammar. Take a look at Figure 2. You'll recognise (if you read the introduction to AI in *AS* 15) this way of representing an English sentence as a tree. The DCG is one of the most efficient ways of doing this, and it happens that using Prolog is one of the best ways of working a DCG. Assume that there is a sentence stretching between the beginning and the end of the list of words passed as input to the DCG (eg `[how,do,i,go,from,aa,to,d]`). According to the Prolog rules in the Lang section, a sentence (S) is until you are looking in the vocabulary section to see if there is such a thing as a determiner ('a', 'the') and a noun ('route') to concatenate to make up an NP.

CRUEL (REAL) WORLD

The route finding section of the program is simplicity itself after all this – `get_routes/4` finds all the routes it can between the two nodes, and `find_shortest/3` finds the length of each of them, and presents you with the shortest. What else is there? Well, of course, this is a technique that only works on such a small network. Using a full UK map and finding every possible route between Blackpool and Grimsby would last longer than my lifetime. In the real world you would throw in a few heuristics, such as working out a way of preventing your route being

Figure 2: Two sentences to interrogate your program



legitimate if it can be proved that there is a questioning verb phrase (QVP) and a targeting noun phrase (NPT) such that, when concatenated, they equal the list given as input to S/3. This is explicitly stated by this extract of code:

```
s(S,_,_):-
qvp(QVP),
npt(NPT,_,_),
$append(QVP,NPT,S).
```

(The other S/3 rule allows another sentence format to be used – you can have as many sentence formats as you like.) Of course, Prolog being Prolog this process recurs and recurs, and so a QVP exists if there exists a Questioning Phrase (QP), and a Verb, and they can be concatenated together to form a QVP. Likewise for NPT. Note that the NPT does something else which, strictly isn't part of a language parsing process: it uses the Target and the Origin nodes for use in the Route Section. This process of definition and subdefinition occurs longer than 2x the crow's flying route between the two nodes. Or perhaps making a classification of the types of routes, and only using routes with a fair percentage of A roads and Motorways. Real Routefinder systems use these methods, and then some. The point is that Prolog is a nifty way of prototyping your ideas. SBProlog may not be a serious development tool, but I've used Prologs in the IBM world that gave blistering performances and could be used for real programming. All we need is for an enterprising someone to port one over... AS

SHOPPING LIST

SBProlog £1.25
(Fish Disk 140)
available from PD Direct
(Disk PDU29a)
☎ 0782 715255

ROUTE FINDER DEMO PROGRAM PART 2

```
/* AMIGA SHOPPER ROUTEFINDER
DEMO PROGRAM PART 2
*/

go:- nlp,!,
nl,print('Now finding ↵
route...'),nl,
route,
route(R,L),
print('The shortest route is ↵
along road segments: '),
print(R),nl, print('This route ↵
is '), print(L),
print(' miles long'),nl.

/*———NLP————————*/

dbclear:- abolish(db,1),
abolish(target,1),
abolish(origin,1),
abolish(route,2).

get_query(Out):-
print('Enter your Query: '),
read(X),
words(X,[],[],Out).

nlp:-dbclear,
get_query(Out),!,
print('Parsing request...'),
prepare(Out),!,
s(Out,Target,Origin),
assert(target(Target)),
assert(origin(Origin)).

prepare([]).
prepare([H|T]):-
word(H),
prepare(T).

word(X):-
((det([X]),assert(db(det([X]))));
(oprep([X]),assert(db(oprep ↵
([X]))));
(n([X]),assert(db(n([X]))));
(pro([X]),assert(db(pro([X]))));
(qa([X]),assert(db(qa([X]))));
(tprep([X]),assert(db(tprep ↵
([X]))));
(v([X]),assert(db(v([X]))));
(node([X]),assert(db(node ↵
([X]))))).

words([],Word,Carry,Out):-
$reverse(Word,Word1),
name(Word2,Word1),
$reverse([Word2|Carry],Out).
words([32|T],Word,S,Out):-
$reverse(Word,Word1),
name(Word2,Word1),
words(T,[],[Word2|S],Out).
words([H|T],Word,S,Out):-
words(T,[H|Word],S,Out).

/*————LANG————————
Handles 2 types of queries:
  "give me a route to Y from X".
  "how do i get from X to Y".
————————————————*/

np(NP):- db(det(DET)),
db(n(N)),
$append(DET,N,NP).

npt(NPT,Target,Origin):- ↵
tp(NPT,Target,Origin).
npt(NPT,Target,Origin):-
np(NP),
tp(TP,Target,Origin),
$append(NP,TP,NPT).

opp(OPP,N):- db(oprep(OPREP)),
db(node(N)),
$append(OPREP,N,OPP).

qp(QP):- db(qa(QA)),
db(v(V)),
$append(QA,V,QP).

qvp(QVP):- qp(QP),
vp(VP),
$append(QP,VP,QVP).

s(S,Target,Origin):-
vp(VP),
npt(NPT,Target,Origin),
$append(VP,NPT,S).

s(S,Target,Origin):-
qvp(QVP),
npt(NPT,Target,Origin),
$append(QVP,NPT,S).

tp(TP,Target,Origin):-
tpp(TPP,Target),
opp(OPP,Origin),
$append(TPP,OPP,TP).
tp(TP,Target,Origin):-
opp(OPP,Origin),
tpp(TPP,Target),
$append(OPP,TPP,TP).

tpp(TPP,N):- db(tprep(TPREP)),
db(node(N)),
 $append(TPREP,N,TPP).

vp(VP):- db(v(V)),
db(pro(P)),
$append(V,P,VP).
vp(VP):- db(pro(P)),
db(v(V)),
$append(P,V,VP).

/*———ROUTE ————————*/

exists_route(End,End,Route,Route)
.
exists_route(Start,End,List, ↵
Route):-
(road(Seg,Start,Midway,_);
road(Seg,Midway,Start,_)),
not $member(Seg,List),
exists_route(Midway,End, ↵
[Seg|List],Route).

  find_pos(H,[H|_],Pos,Pos).
  find_pos(X,[H|T],Pos,Out):-
  Newpos is Pos + 1,
  find_pos(X,T,Newpos,Out).

find_shortest(Routes,Route,Len):-
   sum(Routes,[],Totals),
   sort(Totals,[Shortest|_]),
   find_pos(Shortest,Totals,1,↵
   Number),
   $reverse(Routes,Routes1),
   $nthmember(Route1,Routes1,↵
   Number),
   total(Route1,0,Len),
   $reverse(Route1,Route).

get_routes(Start,End,Routes,↵
Out):-
exists_route(Start,End,[],Route),
not $member(Route,Routes),
get_routes(Start,End,[Route ↵
|Routes],Out).
get_routes(Start,End,Routes, ↵
Routes).

route:- ↵
origin([Start]),target([End]),
get_routes(Start,End,[],Routes),
find_shortest(Routes,Route,Len),
assert(route(Route,Len)).

sum([],Out,Out).
sum([H|T],Begin,Out):-
total(H,0,Total),
sum(T,[Total|Begin],Out).

total([],Out,Out).
total([H|T],Running,Out):-
road(H,_,_,X),
Carry is Running + X,
total(T,Carry,Out).
```

Build a brain

The third part in Philip Gladwin's series helping you to give your Amiga a smidgen of AI

Last month I gave you the concepts you need to handle single processing nodes – this month we're going to use these concepts and begin to connect them together into the neural network shown in Figure 1.

We're going to use nodes which have four output channels and four primary input channels; notice how they send their output directly into the input channels of their four nearest neighbours. Notice also how the net wraps around, so that the nodes on the outside of the net take some of their input from the nodes on the other side of the net. Figure 2 gives the complete look-up table for the net when it is in a state of complete ignorance. Each node starts off with undefined output; this alters when we teach the net anything.

How do we do this? OK – let's start off by giving the net information about the letters "C" and "K". To teach the net the pattern for "C", assume that nodes 1,2,3,4,7,8,9 put out a 1, and nodes 5 and 6 put out a 0. Then, for every node, look at its input pattern, and find the column in the look-up table which corresponds to it. If the node is outputting a '1' change the '?' to a '1'; if it is putting out a '0', change it to '0'. Repeat this for the letter "K".

When you have done this the look-up table should look like the top half of the table in Figure 3. Now generalise the net's memory. You do this by allocating as many as possible of the remaining '?'s to their nearest Hamming neighbour. (See last month's article if you're confused by this.) When you've done this you should have the second, usable version of the table, ie the net has been taught two patterns.

From now on the net is ready to use. So, put the net into operational mode by switching the Teaching Input on each node from 1 to 0, and you're ready to test its knowledge.

The point about neural nets is not that they work or they don't – like the brain they are modelled on, they have a performance gradient. They can sort of half work, or work most of the time. This net is no exception, and it performs best on pattern completion problems where the pattern is close to one or the other of the patterns it has been taught. Where the test pattern has a Hamming distance towards the midpoint of the two taught patterns then the net can get confused.

Operating the net is dead easy. Type it all in, and get it to pass the AMOS internal syntax check. The printed code shown is the code which runs on my Amiga, so if you have problems, check your typing.

The first screen teaches the net the patterns you want it to know. Clicking on the grid switches nodes on and off. When you're happy with the pattern, click on "Pattern OK" to make the net accept your pattern, and clear grid for the next instruction.

Teach the net the letter 'T', and repeat this for the letter 'H'. When the net has accepted both patterns click on the "Use Net" button. You will then see a screen with two separate grids. The grid on the left is the test grid, where you enter the patterns you want the net to identify. Try it – click on nodes (1,3,5 and 8) and click on the "Go" button. The net will identify that partial image as being closest to a 'T'. Click on "Clear", and try it again, with nodes (1,2,3,4,6,7 and 9). This time the net settles on an 'H'.

It shouldn't take you long to realise that the net can settle into strange loops and cycles. Next month I'll be closing the series with an explanation of why this is. AS

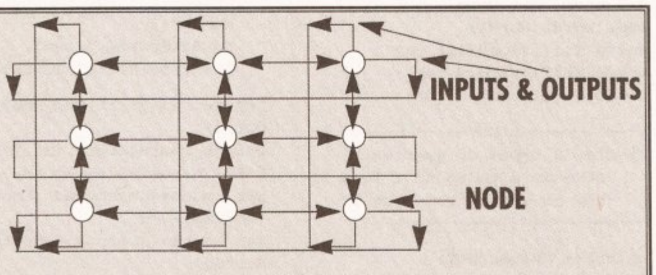


Figure 1: Nine node neural net

INPUT 1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
INPUT 2	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
INPUT 3	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
INPUT 4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
NODE 1	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
NODE 2	?	?	?	?	?	?	?	?	?	?	?	-	-	-	-	-
NODE 3	?	?	?	?	?	?	?	-	-	-	-	-	-			
NODE 4	?	?	?	?	-	-	-	-	-		-					
NODE 5	?	?	?	?	-	-	-	-	-	-	all ?s					
NODE 6	?	?	?	?	-	-	-	-		-						
NODE 7	?	?	?	?	-	-	-	-	-		-					
NODE 8	?	?	?	?	-	-	-	-		-						
NODE 9	?	?	?	?	-	-	-	-	-							

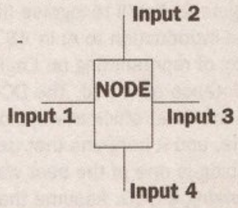


Figure 2: Look-up table for a 9-node net before learning

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
NODE 1	?	?	?	?	?	?	?	?	?	?	?	?	?	1	?	1
NODE 2	?	?	?	?	?	?	?	?	?	?	?	0	?	?	1	?
NODE 3	?	?	?	?	?	?	1	?	?	?	?	?	?	?	1	?
NODE 4	?	?	?	?	?	1	?	1	?	?	?	?	?	?	?	?
NODE 5	?	?	?	?	?	?	?	?	1	?	?	?	?	0	?	?
NODE 6	?	?	?	?	?	?	?	0	?	?	?	?	?	?	?	0
NODE 7	?	?	?	?	?	?	?	?	?	?	?	?	?	1	?	1
NODE 8	?	?	?	?	?	?	?	?	?	?	?	1	?	?	0	?
NODE 9	?	?	?	1	?	?	?	?	?	?	?	1	?	?	?	?

ungeneralised outputs for 'C' and 'K'

NODE 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NODE 2	?	0	?	0	1	?	1	?	?	0	?	0	1	?	1	?
NODE 3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NODE 4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NODE 5	1	?	1	?	?	0	?	0	1	?	1	?	?	0	?	0
NODE 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NODE 7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NODE 8	?	1	?	1	0	?	0	?	?	1	?	1	0	?	0	?
NODE 9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

generalised outputs for 'C' and 'K' – nodes 1,3,4,1 and 9 always output 1, and node 6 always outputs 0

Figure 3: Completed look-up table for a 9 node net learning 'C' and 'K'

EXCITE THAT NOTE

The next step up in network complexity would be to allow the connections between the nodes to have strengths, or weights, between -1 and 0. This simulates the fact that in the human brain there are some inputs which inhibit the firing of the node, and some that excite its firing. A node, in deciding whether or not to fire, will sum its inputs and apply some sort of function to the total. This function can be a simple thresh-holding (fire if the sum of the inputs is greater than 0) or something much more complicated.

AMOS NEURAL NET PART 2 • AMOS NEURAL NET PART 2 • AMOS NEURAL NET PART 2

```
Procedure GENERALISE
  '────────────────────────
  Pen 3 : Locate 5,5 : Print
"Learning...." : Pen 2
  II=31 : JJ=101 : KK=32 : LL=104
  For NODE=1 To 9 : Rem For every node
    For T=1 To 16 : Rem Get every ↵
untaught col
      If OUTPUTS(NODE,T)=9
        SHORTEST[NODE,T,1] : Rem ↵
find the shortest 1 dist
        X=Param
        SHORTEST[NODE,T,0] : Rem ↵
find the shortest 0 dist
        Y=Param
        If X<Y : Rem if closer to ↵
1-taughts
          GEN_OUTPUTS(NODE,T)=1
        End If
        If X>Y : Rem if closer to ↵
0-taughts
          GEN_OUTPUTS(NODE,T)=0
        End If
      End If
      Ink 1 : Bar II,JJ To KK,LL : ↵
Inc KK : Ink 2
    Next T
  Next NODE
End Proc
'
Procedure INIT
  '────────────────────────
  Randomize Timer
  Reserve Zone 25 : Curs Off : ↵
Ink 3 : Cls 0 : Paper 0
  DESCRIBE_NET
  SET_TRUTH_TABLE
End Proc
'
Procedure LEARN
  '────────────────
  LEARN_SCREEN
  CELLS
  GENERALISE
End Proc
'
Procedure LEARN_SCREEN
  '────────────────────────
  BUILD_ZONES[36,36,126,126,1,3,3]
  BUILD_ZONES[36,146,126,166,10,1,1]
  BUILD_ZONES[36,178,126,198,11,1,1]
  Locate 13,0 : Print "TEACH MODE"
  Locate 5,19 : Print "Pattern OK"
  Locate 7,23 : Print "Use Net"
End Proc
'
Procedure PBAR[NODE,K]
  '────────────────
  Ink K
  On NODE Goto A,B,C,D,E,F,G,H,I
  A: Bar 37,37 To 65,65 : Goto LEAVE
  B: Bar 67,37 To 95,65 : Goto LEAVE
  C: Bar 97,37 To 125,65 : Goto LEAVE
  D: Bar 37,67 To 65,95 : Goto LEAVE
  E: Bar 67,67 To 95,95 : Goto LEAVE
  F: Bar 97,67 To 125,95 : Goto LEAVE
  G: Bar 37,97 To 65,125 : Goto LEAVE
  H: Bar 67,97 To 95,125 : Goto LEAVE
  I: Bar 97,97 To 125,125
  LEAVE:
End Proc
'
Procedure PPBAR[NODE,K]
  '────────────────
  Ink K
  On NODE Goto A,B,C,D,E,F,G,H,I
  A: Bar 157,37 To 185,65 : Goto LEAVE
  B: Bar 187,37 To 215,65 : Goto LEAVE
  C: Bar 217,37 To 245,65 : Goto LEAVE
  D: Bar 157,67 To 185,95 : Goto LEAVE
  E: Bar 187,67 To 215,95 : Goto LEAVE
  F: Bar 217,67 To 245,95 : Goto LEAVE
  G: Bar 157,97 To 185,125 : Goto LEAVE
  H: Bar 187,97 To 215,125 : Goto LEAVE
  I: Bar 217,97 To 245,125
  LEAVE:
End Proc
'
Procedure SET_TRUTH_TABLE
  '────────────────────────
  For I=1 To 4
    Restore I*100
    For J=1 To 16
      Read TRUTH_TABLE(I,J)
    Next J
  Next I
  100 Data
0,0,0,0,0,0,0,0,1,1,1,1,1,1,1,1 : ↵
Rem top neighbour
  200 Data
0,0,0,0,1,1,1,1,0,0,0,0,1,1,1,1 : ↵
Rem right neighbour
  300 Data
0,0,1,1,0,0,1,1,0,0,1,1,0,0,1,1 : Rem
bottom neighbour
  400 Data ↵
0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,1 : ↵
Rem left neighbours
End Proc
'
Procedure SHORTEST[NODE,COL,TYPE]
  '────────────────
  HAMMING=4
  For I=1 To 16
    STORE=4
    If COL<>I
      If OUTPUTS(NODE,I)=TYPE
        If
TRUTH_TABLE(1,I)=TRUTH_TABLE(1,COL)
          Dec STORE
        End If
        If ↵
TRUTH_TABLE(2,I)=TRUTH_TABLE(2,COL)
          Dec STORE
        End If
        If
TRUTH_TABLE(3,I)=TRUTH_TABLE(3,COL)
          Dec STORE
        End If
        If ↵
TRUTH_TABLE(4,I)=TRUTH_TABLE(4,COL)
          Dec STORE
        End If
      End If
      If STORE<HAMMING
        HAMMING=STORE
      End If
    End If
  Next I
End Proc[HAMMING]
'
Procedure TEACH
  '────────────────────────
  ' Finds out which row in the ↵
truth table the node
  ' should occupy by referring to ↵
its neighbours and finding
  ' which of them are on
  '────────────────────────
  For N=1 To 9 : Rem for every node
    For C=1 To 4 : Rem for every ↵
node get the neighbours
      X=CONNECTED(N,C) : Rem X = ↵
this node's current neighbour
      If NODE(X)=1 Then ↵
NEIGHBOURS(N,C)=1 : Rem if neighbour ↵
on then ...
      If NODE(X)=0 Then ↵
NEIGHBOURS(N,C)=0 : Rem
    Next C
    FIND_TT_COL[N]
    COL=Param
    OUTPUTS(N,COL)=NODE(N)
    GEN_OUTPUTS(N,COL)=NODE(N)
    TEMP(N,COL)=1
  Next N
  ALLOCATE
End Proc
'
Procedure USE
  '────────────────
  Shared CLICKED()
  Do
    Cls 0
    USER_SCREEN
    USER_PATTERN
    Repeat
      CLCK=Mouse Click : ↵
ZON=Mouse Zone
      DELVE
    Until(CLCK=1 and ZON=11) or↵
(CLCK=1 and ZON=12)
    If ZON=12 Then Edit
    CLEAR_GRID
    For I=1 To 9
      NODE(I)=9
    Next I
  Loop
End Proc
'
Procedure USER_PATTERN
  '────────────────
  Shared CLICKED()
  '
  Repeat : Rem this loop gets the ↵
pattern from the user
    CLCK=Mouse Click : ZON=Mouse Zone
    If CLCK=1 and ZON<10 and ZON>0 ↵
Then CLICK[ZON]
  Until(CLCK=1 and ZON=10) or(CLCK=1 ↵
and ZON=12)
  If ZON=12 Then Edit : Rem option ↵
to quit
  For I=1 To 9 : Rem this loop puts ↵
the user pattern into Node()
    If CLICKED(I)=1 Then NODE(I)=1
    If CLICKED(I)=0 Then NODE(I)=0
  Next I
End Proc
'
Procedure USER_SCREEN
  '────────────────
  Reset Zone
  BUILD_ZONES[36,36,126,126,1,3,3]
  BUILD_ZONES[156,36,246,126,12,3,3]
  BUILD_ZONES[106,146,176,196,10,3,1]
  Locate 14,0 : Print "USE MODE"
  Locate 17,19 : Print "Go"
  Locate 15,21 : Print "Clear"
  Locate 16,23 : Print "Quit"
End Proc
'
' End Neural Net Program
'
```

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Music: this icon is for questions about MIDI, sampling, synthesizers and so on.

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We also cannot enter into personal correspondence – all enquiries will be dealt with in the pages of the magazine. This does mean a bit of a delay in solving your problem, but you'll just have to be a little patient and wait for it to appear in print. You won't get a personal reply even if you enclose an SAE with your letter, so please don't bother.

Send your question on the form below to: Amiga Answers, *Amiga Shopper*, Beauford Court, 30 Monmouth Street, Bath BA1 2BW.

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Cliff Ramshaw –	The really hard stuff that no-one else can answer

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Name: ______________________

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____

____

Your machine:

A500 ☐ **A1000** ☐ **A1500** ☐

A2000 ☐ **A3000** ☐

Approximate age of machine: __________

Kickstart version (displayed at the 'insert Workbench' prompt)

1.2 ☐ **1.3** ☐ **2.x** ☐

Workbench revision (written on the Workbench disk)

1.2 ☐ **1.3** ☐ **1.3.2** ☐ **2.x** ☐

PCB revision (if known). Do not take you machine apart just to look for this! __________

Total memory fitted (see AVAIL in Shell for 1.3 Workbench) __________

Chip memory available (see AVAIL in Shell) __________

Agnus chip (if known) __________

Extra drive #1 (3.5"/5.25") as DF__: Manufacturer __________

Extra drive #2 (3.5"/5.25") as DF__: Manufacturer __________

Hard disk: ____Mb as DH__: Manufacturer __________

Extra RAM fitted – type, size in Mb and manufacturer __________

Details of any other hardware which could help us to answer your question:

____

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AS 16

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NO PROBLEM!

Welcome once more to *Amiga Answers*, the section of the magazine where we endeavour to straighten out your hassles with that wonderful but occasionally stubborn machine, the Amiga. Every month we devote more space and apply more resources than any other Amiga magazine to solving your problems. We receive something like 100 queries a week, so the service is obviously appreciated.

It's my job to co-ordinate the whole thing: sorting through the questions and sending them off to the relevant chappies for the kind of in-depth answers you've come to expect; and compiling them into the lovingly crafted pages which you see before you.

I call on a wide variety of expertise to make sure you get the answers you need, which is why *Amiga Answers* is so successful. There's Mark Smiddy, industry guru, AmigaDOS-tamer and business applications wizard; Jeff Walker, probably the most knowledgeable Amiga desktop publisher there is; and Jason Holborn, long-time AMOS explorer and PD sampler, as well as good all-rounder (or should that be all round good guy?).

If it's a question about video, then I'll pass it on to Gary Whiteley, our professional videographer for whom the word 'genlock' means 'mixing Amiga graphics with video for magical results' and for whom the word 'snipwirral' means nothing at all.

Programming queries are dealt with by Paul Overaa, who's not afraid to code in any language, and who doubles as a MIDI maestro to solve your sequencing slip-ups.

Our hardware guru is Jolyon Ralph. This man knows just about everything about disks, both hard and floppy, and what he doesn't know about memory he's probably forgotten. Communication breakdowns are fixed-up by Phil Harris.

All in all, a formidable team, supplemented by my own not inconsiderable Amiga suss. Let's face it, if we can't answer your question, it's probably one of the Mysteries of the Universe.

This month we put yet more people in the right direction for printer drivers – the most common Amiga query there is. We give Amiga buying advice, explain the intricacies of floating point representation, partition a hard drive, and detail the connection of several monitors.

The sound filter is analysed, using requesters from C is explained, and the delights of Denise are divulged, amongst numerous other things.

Don't forget to keep sending us those problems – we thrive on them!

Cheers,

Cliff Ramshaw

AMOS ANSWER

As the Editor of *Vector*, the shareware disk magazine, I was wondering whether it would be possible to include listings from *Amiga Shopper* in a new section devoted to AMOS. I am especially interested in using the 3D requester routine by Chris Hurst and the Time procedure by François Lionet.

Anon

Having checked with Andy (our editor), you'll be pleased to learn that he has given the big thumbs up. Other readers should note however that it is always a good idea to contact a magazine before re-publishing anything that appears in print. Every single word that a magazine publishes is copyrighted to the author and the magazine in question, so legal action could be taken if someone re-publishes any part of an article word for word without the permission of the publishing house in question. We're pretty easy going on *Amiga Shopper*, but we still like to know when someone wants to re-publish any part of the magazine. ***JH***

BASIC PRINTING

Is it possible to detect whether a printer is on-line from *Amiga Basic*?

Frank Dyson
Elland
West Yorkshire

It is possible to detect errors when writing to the PRT: device (whether explicitly or by using LPRINT) and you will find that having the printer off-line will generate a normal Basic type trappable error as this short example will show:

```
ON ERROR GOTO TRAP
LPRINT "Just a line of ↵
test text"
END
TRAP: PRINT "Sorry - ↵
printer is still not on line"
RESUME NEXT
```

If you run this program with the printer disconnected you'll get, after a short delay where nothing appears to happen, a system requester telling you that there is printer trouble. If the requester is cancelled without the fault being rectified then the Basic error trap takes over and in the case of the above example the attempted LPRINT is cancelled, a message telling the user that the printer is still not on line appears, and the program terminates. As far as I know there is no way to prevent the system requester from appearing but the error trap statements can, at least, make sure the program takes a suitable course of action. ***PAO***

CROSS WITH FILO-DOS

I have entered the AmigaDOS database on page 121 of *Amiga Shopper*'s May edition but I can't get it to work. It just says "Command:" at the bottom and refuses to do anything else. What is going wrong?

Shane Lambert
Beverly
South Humberside

I suspect you have misunderstood the article. The AmigaDOS database is constructed from several modules which were serialised from issue 13 to 15. The Database listing you refer to forms the main menu which calls the individual modules. ***MS***

TRACKBALL TROUBLE

I recently purchased an Alpha Data TKB-MT-A trackball from Gasteiner Technologies. When the trackball is plugged-in, my Nexus/Quantum hard disk refuses to auto-boot, although the system will boot from floppy.

Can you please help? I am capable of and willing to perform the minor surgery of replacing leads and/or connectors if this is necessary.

Graham Darlington
Halewood Village, Liverpool

I have never heard of dodgy mice/trackballs crashing the Amiga. I have heard of mice that have the metal shielding on blowing up Amigas by short circuiting the mouse port (indeed I did this to my first Amiga 2000 the week after I bought it), but this is not the same thing.

I'd try replacing the trackball, failing that, take your Amiga to a repair centre and ask them to take a look at your mouse port. ***JR***

STAR FADES AWAY

I have a problem with my Star LC24-10 printer. Parts of the printed text or graphics are faded at the beginning and end of some lines, more so with graphics than text.

We've taken the printer back to the shop, where it has supposedly been repaired. It usually performs better after a repair, but gets worse

JARGON BUSTING • JARGON BUSTING

Chip RAM – The area of the Amiga's memory directly accessible by the custom graphics and sound chips. It is used for producing screen displays, animations and sound effects.

Hard drive – Like a floppy drive, but much bigger and faster. Also, the disk cannot be removed, so once the hard drive has been filled, it's either time to delete excess files or get another one.

Include files – Supplied by Commodore, these provide the offsets needed to access system library routines, and the formats for all system structures.

24-bit graphics – Normally, the Amiga uses between one and five bits (binary digits) to store the colour of each pixel (picture element) of a display. This means that between two and 32 colours can be displayed. Hardware add-ons are now becoming available which use 24 bits per pixel, giving a possible 16.7 million colours.

again. It's never been completely solved.

We've had the printer for two years; the problem developed after one. What causes the fading?

Mark Fox
Hazlemere
High Wycombe

This sounds suspiciously like the ribbon gear mechanism isn't working properly. When you return it to the retailer he probably opens up the printer and twiddles around with this mechanism, which will cure it for a while, but not for very long, as you have discovered.

Your retailer won't fix it properly because the guarantee has run out. The only solution is to pay someone to repair it. If the place you bought it from won't or can't do the job, then phone Star sales ☎ 0494 471111, explain the problem, and ask for details of Star dealers who will be able to repair it.

But before you do that, try it with a new ribbon just in case the one you are using is faulty or worn out. I know this might sound like a sales pitch for Star, but the only LC24-10 ribbons I can put my hand on my heart and recommend are those manufactured by Star itself; some of the cheap third-party LC24-10 ribbons are not worth the plastic case they come in. ***JW***

GAME DECISION



I wish to purchase an Amiga computer for the sole purpose of playing games. I had decided upon an Amiga A500 Plus but the arrival of the A600 has left me wondering which of the two machines would be best suited for my purposes. When I purchase my new machine, is it important to specify the Kickstart version? Is the Philips CM8833 compatible with both the A500 Plus and the A600?

FD Beilby
Thorne
Doncaster

If you only ever intended playing games, then I'd probably tell you to buy an A600, but chances are that you'll probably want to do a lot more than this once you actually buy an Amiga. Many people buy Amigas for the sole purpose of playing games, but most of them eventually realise that there's a lot more to computing than waggling a joystick. I for one started my computer career playing games only, but you'd be surprised just how easy it is to get tempted by the more serious side to computers, especially when they're as capable as the Amiga.

With this in mind, your best bet is the A500 Plus. Although Commodore has discontinued the machine, third party hardware and software vendors will continue to support the machine for years to come. After all, in the UK alone the A500 accounts for almost 95% of the user base. If hardware vendors were to ignore such a huge market, they'd be cutting their own throats. Even when vendors start to produce titles for the A600's ROM card slot, you can bet that some enterprising company will come up with an adaptor. Take my advice – buy the A500 Plus instead.

All new machines come equipped with Kickstart and Workbench 2.04, so there's no reason to specify the Kickstart version. Finally, the Philips CM8833 will work perfectly with the A500 Plus and the A600. ***JH***

HEY BIG SPENDER



I am in the market for a 24-bit display card. I have an Amiga 500 with an SSL A5000 68020 accelerator and 3Mb RAM. I've seen the adverts for the Progressive Peripheral and Software's Rambrandt system which utilises the Texas 34020 and 34082 chip set to produce very fast graphic processing, 3D hardware shading etc.

I have a budget of £3-£4000 and this must also include a 68040 processor as well as the display card. Could you tell me if Rambrandt is the fastest system currently on the market within my price range or, would I be better looking at other systems?

DF Edwards
Harlow
Essex

Unfortunately you are going to have to include a new Amiga in your shopping list if you want a Rambrandt. Why? Simply because the Rambrandt is designed to fit Amiga 1500/2000/3000 series computers as an internal expansion system. This also applies to many other 24-bit devices based on expansion slot architecture, for instance Amiga Centre Scotland's Harlequin, G2's VD2001 and GVP's IV24. Archos's AVideo24 will fit in the Denise slot of your Amiga 500, but you'll need an '030 card to run *TV Paint*. In fact, an '030 is almost obligatory for graphics work at the level you appear to be aiming for, though your projected '040 will, of course, do nicely instead.

From what I've seen so far (which is limited to the *Amiga Shopper Show*) the Rambrandt appears to be a very interesting device. The selling price will be around £2200 when they eventually hit the streets, probably around the time you are reading this. As I said last month, the spec looks great, but until there is enough software support I would hold fire. You may also be interested to know that GVP is producing a graphics card which attaches to the 32-bit expansion slot of their G-Force cards, which is rumoured to be excellent, and Britain's own G2 should be pitching in with its own offering soon. My best advice for now is to stick with what you have and wait a little while. Keep an eye open for the new generation of hardware which is literally just around the corner. By this time the whole lot, including a new Amiga, should be well within your budget. ***GW***

MINISCRIBE DRIVE



I have a Miniscribe 8425 E8D5I PM 8000 hard drive. All I would like to know is the capacity and the interface type – IDE or whatever – and which controller you would recommend. The drive has an inspection date of 20/5/87 and was made in Singapore and I have no paper work with it. It's to fit a revision 6.2 B2000.

Jim McCusker
Letchworth
Herts

I'm not sure about the capacity of this drive, although I'd hazard a guess and say it is probably a massive 20Mb drive. The interface you describe is ST-506, and there is no way of connecting this to the Amiga 2000, except the Commodore A2090A controller, which is no longer made and was a piece of junk anyway. Sorry I can't help any more. ***JR***

WHICH PRINTER?



I am going to be buying a printer near Christmas, and I want to know which would be best. My choices are the Seikosha SP-1900 Plus dot-matrix, the Commodore MPS-1270 inkjet, and the Star LC20 dot-matrix.

I was thinking about the Commodore one, but I read in *Amiga Answers* (issue 9) that this printer is not currently being produced. Is this true?

Finally, could you tell me which printer driver each of the above printers require?

Mark Whitworth
Yeadon
Leeds

If the MPS-1270 is not in current production, this is big news to Commodore's marketing people, who tell me the opposite.

The driver Commodore recommends for use with the MPS-1270 (in IBM or Epson mode) is the CBM_MPS1000 driver on the Extras disk; however, as the name of the driver implies, it is not a 'proper' driver for the MPS-1270 and there may be problems with graphics, and there might be some features of the MPS-1270 that cannot be used.

The Seikosha SP-1900 Plus

INCLUDING C



I have recently purchased *NorthC*, a PD version of the C language. Can you please tell me how and where I can purchase the Commodore Amiga include files.

S Bultitude
Lower Stondon
Beds

The header files can be ordered for £25 directly from Commodore UK at: Commodore Business Machines (UK) Ltd., Commodore-Amiga Technical Support, Bradbourn Drive, Tilbrook, Milton Keynes MK4 8AT.

PAO

HEART SURGERY



I recently gave my Amiga A500 open heart surgery and successfully made the modifications necessary to allow the machine to use 1Mb Chip RAM. I managed that without a hitch, but while I was working, I noticed that near to the existing four RAM chips there were another four empty spaces. Does this mean I can add another 512K to my machine in addition to the 1Mb already shared with the A501 expansion?

B Bal
Wolverhampton
The Midlands

This is commonly known as a "gotchya". There is room for 1Mb on the main board: two 512K blocks configured from four 1Mbit chips. The "gotchya" is the fact that the A501 occupies exactly the same physical address space as those four chips. The answer therefore is, no. Sorry. At better typical solution would be to get a larger expansion – preferably on which fits on the side of the machine – Power Computing has just released two; one of which is a budget 2Mb expansion. ***MS***

JARGON BUSTING • JARGON BUSTING

HAM – Hold And Modify is an Amiga graphic mode allowing all 4096 colours to be displayed at once, with certain restrictions.

PC clone – IBM PC compatible computer based on one of the Intel 8067 or 80xxx series CPUs, and with similar hardware/software configuration.

Printer driver – A program that sits inbetween any applications program producing output and the printer. It converts any codes describing text and graphics format into a form suitable for a specific printer.

RAM – Random Access Memory, the place in the Amiga where programs are stored while they are being executed. The more RAM the better.

Sample – A digital – computerised – representation of a sound. A sample can be sent through a digital to analogue converter (the Amiga has four of these) and be heard as sound. Changing the speed at which the sample is played back changes the frequency (or pitch) of the sound.

emulates the Epson FX-850. It's supposed to be a 100% FX-850 emulation, but then they say that to all the girls. If it is 100% FX-850 emulation, then the best driver to use is called Star9Plus, available on a £2 Jamdisk from JAM ☎ 0895 274449.

If you are considering a Star 9-pin printer then I would recommend the LC-200. This is the only printer in your list for which an Amiga printer driver has been specifically written, that driver being the afore-mentioned Star9Plus one. ***JW***

MEMORY MATTERS



I want to add more memory to my Amiga A500 (about 2-3Mb). What is the best memory expansion available bearing in mind that I don't want to spend any more than £140?

Also, I use the PD program *PrintStudio* to print out *Vista* landscapes but the printouts are rather dark. Surprisingly though, other programs seem to print OK. What can I do to improve the quality of my printouts? I am using the Star LC-10 driver to drive my LC-200.

Paul Chamberlain
Letchworth
Herts

Having used several RAM expansions, I personally prefer the Cortex (☎ 051 236 0480) range of boards. The 2Mb board that the company produces costs £160. OK, this is £20 more than you want to spend, but it really is worth it.

Cortex RAM expansions boast an impressive list of features including a pass-through connector (very important if you wish to buy a hard drive at a later date) and they come with their own power supplies so they won't burden the Amiga.

If the printouts that you are obtaining from the Star are too dark, then check the density setting on your *Vista* program disk. If the setting is too high, then the printout will be rather dark. Under 1.3 Preferences, go into the Graphic 2 window and adjust the density setting to about 3 or 4. Failing that, it might be worth getting your hands on a copy of the Star9Plus printer driver which is on Jeff Walker's JAM disk 5. It costs £2 and can be obtained from JAM, 75 Greatfields Drive, Uxbridge UB8 3QN. ***JH***

REAL 32 COLOURS



I read a review of *Real3D* some time ago. I have beginners version 1.1 and I am having difficulty rendering images in 32 colours. I can render to 16 greyscale and HAM but I am unable to render 32 colours. Do I need the professional version?

M Wallman
Colchester
Essex

The short answer to your question is that none of the versions of *Real3D* support 32 colour rendering, only HAM, 16 colour greyscale and 24-bit! If you want to produce a 32 colour image you'll have to render it in HAM or 24-bit and convert it. You could try using *DPaint IV* to do this by loading a HAM image and then changing the screen format to 32. Alternatively, other programs such as *PixMate* or *Art Department* are available to perform the same tasks. ***GW***

PC BLUES



My Amiga A1500 has a CSA-MMR because I needed the speed for DTP and DTV work. I have now discovered I need to run PC software at home for a training course. Would any of the current emulators suit my setup? I don't want to have to buy a separate PC.

David Sellwood
Warrington
Cheshire

There are several choices for such a setup such as the Commodore Bridgeboards, Vortex ATOnce and the KCS Power PC cards. The choice is up to you, but my personal choice has always been the KCS system. Although, like ATOnce, it needs an adapter for the larger Amigas, it remains the most consistently reliable system I have used and offers the best choice of screen modes. However, if you intend to run any hi-resolution EGA or VGA modes, it may be worth investing in a flicker fixer and multi-sync monitor. ***MS***

SWITCH GLITCH



I have bought a Golden Image hand scanner with *Touch-Up* software. I also bought a Centronics switch box so that I could switch between using my Star LC-200 printer and the scanner without having to switch off the computer.

All seemed fine until I took a look at some line art that I had scanned. It was very corrupt. So I tried connecting the scanner directly to the computer and the corruption problem went away.

All the cables appear to be making good connections, and the switch box has no fault. Any ideas on what is going wrong?

Graham Crowther
Pant
Oswestry

You've proved that the switch box is the problem, it obviously cannot keep up with the speed at which the scanner is trying to pass data through the parallel port.

Solution? Get a better switch box. Avoid these big (and cheap) switch boxes that look like a rat's nest of wires inside, go for one that is made with a printed circuit board. ***JW***

THROUGH-PORT ADAPTOR



I want to buy a hard drive. I had settled on the GVP 105Mb as the ideal choice but it does not have a through-port and would consequently need unplugging at regular intervals to use my Action Replay.

I know this question has come up from numerous people in different forms a number of times, but it seems nobody will give a definite answer to the question. Most just duck it and give a totally different and unsatisfactory answer. I use the Replay a lot now: formatting, installing, doing directory checks, checking which disks I'm stupid enough not to have labelled, ripping pictures and words and so on. I found recently that life was a lot harder without a Replay. Is there a reliable company that can make up a lead to connect both hard drive and replay to the Amiga at once?

David Lord
Manchester

You are in luck. Datel Electronics Ltd (☎ 0782 744 324) does a little board which will allow you to plug both the replay and hard drive into the Amiga at the same time. ***JR***

SOUND EDITS



I use *TechnoSound Turbo* to produce samples, but one thing seems to puzzle me. I know that to increase the pitch of a sample it has to be played at a higher speed but this also speeds up the sample. *Audio Engineer Plus* claims to be able to alter the pitch without altering the playback speed. Could you please tell whether this process works well or does the quality of the sample suffer? Are there any cheaper packages available that will do the same job?

Stuart Wilkes
Tunbridge Wells
Kent

Altering the pitch of any sample will effect its sound quality no matter whether you're using *TechnoSound Turbo* or the latest Akai 16-bit sampler, especially when the pitch is lowered. Considering the limitations of the Amiga's sound hardware, *Audio Engineer Plus* actually does a very good job of altering the pitch without effecting playback speed. It doesn't work too well on shorter samples, but for long looped rhythms etc, the results are certainly pretty impressive.

Audio Engineer is rather expensive (£200) so no doubt you'll be pleased to learn that the software is available separately in the shape of *AudioMaster 4*. It costs approximately £80 and is available from HB Marketing ☎ 0753 686000. ***JH***

C POWER



I have been using *NorthC 1.3* for a number of months now, mainly to get the feel of Intuition. Recently however, I needed a power function so I used the math.h include file to get access to pow(). I've noticed that this only has an accuracy of five decimal places, as does the exp() which I assume is used along with log() to make up the pow() function.

Although math.h uses different declarations to the libraries/

continued on page 62

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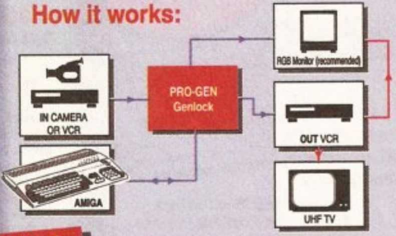
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- ☆ Mini slot for future expansion
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GVP AMIGA A500 HARD DRIVES

RAM SIZE	CAPACITY 52Mb.	120Mb.	240Mb.
0Mb.	£349.95	£459.95	£729.95
2Mb.	£419.95	£529.95	£799.95
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Our best quality full colour printer at a realistic price
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PRINTER ACCESSORIES

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Automatic SheetFeeder	£74.95
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Automatic SheetFeeder	£114.95
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Star XB 24-250 Colour Printer	
Pull Tractor	£34.95
Font Cartridges - Styles To Be Announced	£29.95
128K Centronics Printer Buffer	£89.95
Automatic SheetFeeder	£174.95
Dual Bin SheetFeeder	£469.95

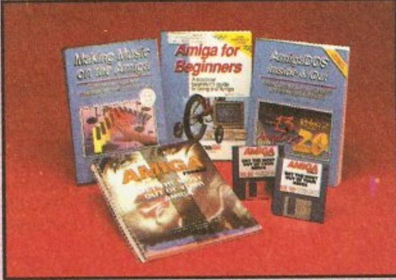


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CITIZEN 124	BLACK ONLY	£4.95	£24.95	N/A	N/A
CITIZEN SWIFT 9	BLACK/COLOUR	£4.95	£24.95	£16.95	£99.95
SWIFT 24/24E/224	BLACK/COLOUR	£4.95	£24.95	£16.95	£99.95
STAR LC10*/20☆	BLACK/COLOUR	£4.50*☆	£24.95*☆	£6.90*	£36.50*
STAR LC200	BLACK/COLOUR	£6.95 ZX9	£36.95 ZX9	£12.95 ZX9CL	£69.95 ZX9CL
STAR LC24/200	BLACK/COLOUR	£8.95 Z24	£49.95 Z24	£14.95 X24CL	£74.95 X24CL
STAR XB RANGE	BLACK/COLOUR	£8.95 Z24	£49.95 Z24	£14.95 X24CL	£74.95 X24CL
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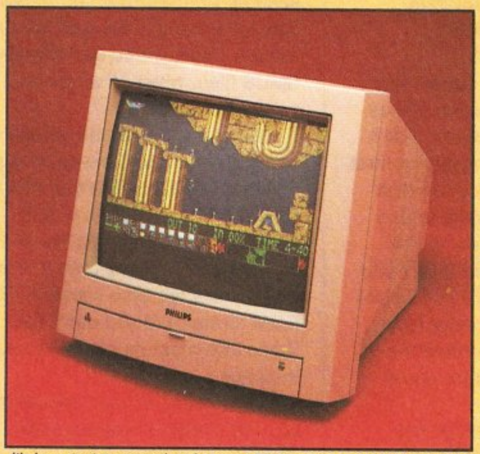
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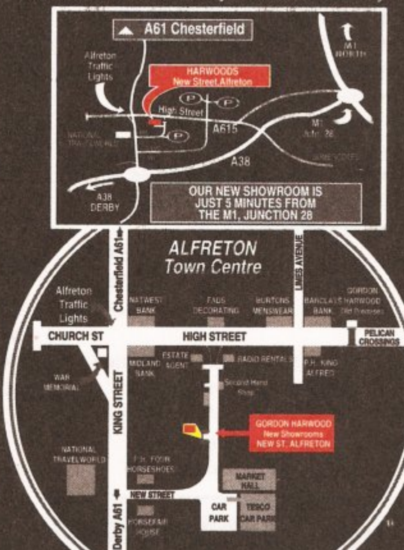
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C – A compiled language designed primarily for systems programming. It was used to write much of the Amiga's operating system, and is used in the writing of many Amiga applications.

Format – A process of preparing a floppy disk so that it can be used by the Amiga. With Workbench 2, floppies can be formatted with the Fast Filing System to make them operate quicker, but with more likelihood of errors.

Partition – Part of a hard drive separated off from the rest. As far as Workbench, AmigaDOS and the rest of the world is concerned, a partition is a disk in its own right. Problems do come to the fore when you try to copy data between two partitions on the same drive.

Printf – A standard function supplied with C which enables programmers to send output to the screen.

Trancendental function – A mathematical function associated with logarithms. Each transcendental function has its opposite, such that if the log of a number is taken, and the anti-log taken of the result, the final number will be the same as the initial one.

continued from page 54

mathffp.h file I can only assume that the mathtrans SPPow() is being used as the disk with the libraries on is called for when the program is first run.

According to the documentation supplied the mathtrans library is opened when one of its functions is used and so manual opening is unnecessary. I have done this to use the SPPow() function directly but there is no difference in the solution. Is my problem unique or is the mathtrans SPExp() library function really that bad?

David McKone
Chester-Le-Street
County Durham

The ffp (fast floating point) libraries are based on a Motorola format which uses 24 bits for the mantissa. Ignoring the accuracy of the algorithms used to compute the various transcendental functions, the representation error will be 1 in 24 bits, ie about one part in 'two times ten to the power seven'! You would therefore expect errors from around the eighth significant figure onwards. This is much better than you have found and your problem lies not with the accuracy of the ffp routines but with your use of the *NorthC* printf() function.

If, for example, you try to print the value of e/100 using the following program:

```
#include <stdio.h>
#include (math.h>
main()
{
double x;
x=1;
printf("%f \n",exp(x)/100.0);
}
```

you will get a result with six decimal places, 0.027183, where only the first five are correct. If however you try to calculate a value that is one hundred times greater than e, using this modified program:

```
#include <stdio.h>
#include (math.h>
main()
{
double x;
x=1;
printf("%f \n",100*exp(x));
}
```

you will get a result of 271.828188 which, as you'll doubtless know, gives a value of 100 times e correct to eight significant figures.

These results suggest that, like most other printf() implementations, the *NorthC* version defaults to floating point number display containing six decimal places with the last figure rounded.

The *NorthC* documentation suggests that floating point formatting has not been implemented but a few experiments along the lines of the above pieces of code showed quite clearly that it is. If, for instance you modify my first example so that it uses a ten digit floating point format string, ie use "%10.10f \n" rather than "%f \n", you'll find that instead of 0.027183 you'll get a result of 0.0271828184 which is 'significantly' better (sorry, couldn't resist that one) than the results of the first program would lead you to believe.

The bottom line then is that when using printf() to display these ffp values you just need to modify your format strings so that the appropriate number of digits are printed. ***PAO***

FINDING THE BOOK

***Amiga Shopper* recently mentioned a book called *HiSoft Basic* but I've not been able to find it in any bookshop. Can you please tell me where I can get a copy from?**

HS Shergill
Littleover
Derby

I think the simplest thing to do is write directly to HiSoft. Its address is HiSoft, The Old School, Greenfield, Bedford MK45 5DE. The book, incidentally, costs £14.95. ***PAO***

FRAME RATE FIX

To help me work out the number of pre- and post-roll frames of my video gear I made up an animation using *DPaint4* on my Amiga 500. I produced a sequence of -100 to 0 to +100 pages, twice, and interspersed it with 200 blank frames.

Transferring this anim at 25 frames per second resulted in every 5th frame doubling up. Only by running at 30 FPS could I achieve a 25 FPS video run correctly. I wonder whether my A500 is running slow or are all A500s the same due to some bug in the NTSC to PAL system.

Secondly, when I attempt to transfer a sound sample captured on my Mastersound sampler to *DVideo3* or *Disney Animation Studio* I get a "Not an SMUS file" error. If all programs are IFF, what's going on?

Fred Wells
Leeds
W Yorks

I'm fairly sure that this is no bug. What you're seeing is either the product of your Amiga just not being able to push data through fast enough, or (and this is my favourite theory) that the maximum 30 FPS in *DPaint4* is a hangover from the NTSC version.

As you know, NTSC frame rate is 30 FPS, and the software is American. Port it over to PAL, and 30 FPS probably equates to 25 FPS in reality – as you have discovered. You should also be aware that the larger screen formats, especially hi-res overscan in 16 colours, will run increasingly more slowly as they are more memory intensive.

For your information, SMUS is an oldish IFF format developed for musical scores. It never really became widespread, but programs such as *DeluxeMusic* and *Music-X* can save, though not load, in this format. *DeluxeVideo* can play back SMUS files, which is where your problem originates.

However, the sound samples which Mastersound saves, though still in an IFF format (either *SVX or RAW, I think) are not in SMUS format. IFF (Interchange File Format) is more a philosophy than a format, as graphics are also saved in IFF ILBM format, but you can't load these into most music software, for instance.

My reading of your trouble is that you are trying to load a sound sample (as produced by *Mastersound*) as a Tune Track in *DVideo*, which only accepts SMUS files – hence the error message. What you should be doing is Playing the sample as part of a Scene.

I suggest you try opening a scene, adding a new track, then defining it as sound, loading one of your samples and then playing back the scene. All should now be well. ***GW***

HARD UPGRADE

My GVP hard drive came supplied with a single partition configured for use with Workbench 1.3. I have since replaced the machine with an A500 Plus and would like to re-configure the drive with two partitions and Workbench 2. I do not have anything important stored on the drive, but since the thing cost over £400 I do not want to blunder about on my own.

JL Jones
Birkinhead
Merseyside

The first stage of the process is to reformat the drive using the Faastprep utility supplied by GVP. This will allow you to set up the number and size of partitions: two equal-sized ones are a good start. The formatting procedure is quite painless and you should have no problems following GVP's excellent manual. You can manually copy all the Workbench 2 disks from the Shell using the following command on each:

```
copy from df0: to dh0: all
```

If all else fails ask your local specialist dealer. NASCR (National Association of Specialist Computer Retailers) members in particular, are specialists in this sort of area and should be able to get you going for a minimal fee. ***MS***

HARD DISK HARD TIME



I have recently been given a Rodime 40Mb hard disk (just the drive and no other circuits) and I would like to know if it would be possible to connect this to my A500. If so, could you give me details of how this could be done? Would I require a HD controller or would I be able to make an interface for the hard disk myself?

A Gosling
Wythenshawe
Manchester

Without knowing more details on the Rodime drive (Rodime went out of business last year, so the company won't be able to help you) it's difficult to say what type of drive it is or how to connect it. If it's a SCSI drive you can link it up to almost any Amiga SCSI controller (such as the Amiga A590 hard drive). If it's any other type, you're probably better off losing it somewhere. ***JR***

CASE FOR CONVERSION?



I have a 2Mb A500 Plus and I am thinking about upgrading the machine with a GVP hard drive for the Amiga 2000 using a Checkmate expansion case as the price seems to just about balance out against the A500 GVP drive. Do you think that this is wise?

Is the Checkmate 1500 system compatible with most A2000 cards? Can I mount the new A690 CD-ROM drive inside the 1500 case? Does the A690 have a SCSI interface? I believe that I can also use A500 cards inside the 1500. Is this correct?

Martin Fleming
Paisley
Scotland

I'm afraid, Martin, that your calculations may be a little incorrect. The Checkmate Digital 1500 is still being sold for around £200 and the A2000 GVP hard drive controller with 52Mb drive is £300. However, the price of the A500 GVP drive (which can be connected directly to the A500 without any extra hardware) is just £380. Add the price of the GVP A2000 drive to the Checkmate drive and you'll actually end up spending £120 more for a system that is no more capable than the standard A500 GVP system.

Even if the prices did balance out, I think you'd be unwise to go for the Checkmate 1500. Having owned one myself for a couple of years now, I have never been particularly impressed. The overall quality of construction is rather low to say the least, with many of the parts failing to connect altogether. If you really do want a replacement casing, then why not check out Checkmate's HiQ Tower system, a much better (and better built) replacement casing for the A500 based around a PC compatible tower system casing. Failing that, sell your A500 and buy an A1500 instead (you should be able to pick them up for about £500 these days).

The bog standard Checkmate 1500 system isn't compatible with any A2000 cards – this is an optional extra which adds to the price of the whole system. As it stands, the 1500 can handle a single A2000 card which can be either a standard Zorro II card or a video card (a genlock, for example). If you want to add extra A2000 cards, then you're stuck. Checkmate had planned to produce an 'OverRider' box which allowed a few more A2000 cards to be used, but this never actually arrived (it became vapourware, as the techies say).

Although the 1500 can handle the A590 hard drive, it cannot handle the A690 CD-ROM drive simply because you need to be able to remove the CD-ROM 'caddie' every time you wish to load a new piece of CD-ROM software.

Because of its age, the 1500 has not been designed to handle any device that uses removable media other than the standard Amiga floppy drives. I'm sure Checkmate will build this facility into the HiQ tower, however. ***JH***

FATHER AND SON



Son writes:
I have acquired a Microvitec Cub monitor and Microline 80 printer. Which cables would I need to connect to my Amiga 500 Plus and are they available?

Colin Swift, age 11

and...

Father writes:
In *Amiga Shopper* dated December 1991 you state that the Microvitec Cub can be used with the Amiga 500 Plus. My son's queries regarding the use of the monitor and printer stem from the fact that I am unable to obtain any information regarding their compatibility. Can you help?

L Swift (no age given)
Nottingham

As long as the Cub you have has a TTL input (6-pin DIN : 1=Red, 2=Green, 3=Blue, 4=Composite sync, 5=Ground and 6=Not connected) connection you'll be OK. Then you'll need to get hold of a copy of *Amiga Shopper 3* (page 113) where electro-doctor; Smiddy takes you step by step through fixing your Amiga to a TTL-equipped Cub. This involves a small amount of internal tinkering to make the Cub work with the Amiga's 4096 colours, rather than TTL's eight, but this should be easy enough for most folks. If you don't fancy making the lead yourself you should contact Meedmore Ltd ☎ 051 521 2202, which supplies both kits and the ready-made article, along with additional notes – in case you can't contact the *Amiga Shopper*'s back issues department ☎ 0458 74011.

Before you can decide what connector you need for the Microline 80, an oldish 9-pin printer made by Oki, you'll have to establish whether it is configured as a parallel or serial printer, since it was originally available in both formats.

Next you'll need to select a printer driver to control it, but I'm not sure that there is a specific driver available for the 80. As I was told, this printer doesn't have any facilities for emulating Epson or IBM printers, as most modern printers do, so it isn't possible to use a standard EpsonX-type driver. However, there should be a printer driver called Okidata_92 in Devs/Printers on your Workbench Extras disk which you need to copy into the Devs/Printers drawer of your boot disk.

After you've done this open Preferences/Printers and select Okidata_92 from the Printer Drivers list and Parallel (or Serial) for the Printer Port setting. If the printer is using a serial port you may also need to make some adjustments to the Preferences/Serial settings. You should find the required settings in the manual (if you have one). If not, a call to Oki technical support ☎ 07535 31292 may be necessary.

You will probably have to make other adjustments to get everything exactly right but you should now at least be able to get started. ***GW***

TALLY MAN BLUES



My Mannesman Tally MT81 printer keeps double spacing. I have tried all the drivers on the Extras disk, with various setting of the dip switches – IBM/Epson emulation, linefeeds on/off for example – all to no avail.

I rang Mannesman Tally but the person I spoke to wasn't very interested. The girl said the printer has to be in IBM mode. Help.

Neil Croft
Herringthorpe
S Yorks

With dip switch SW1-1 switched on (that's block 1, switch 1) the MT81 emulates an Epson FX-85, and so it should work with either the EpsonXOld or EpsonX[CBM_MPS-1250] drivers.

The double linefeed is being caused by the Amiga sending a linefeed and the MT81 providing its own linefeed, so SW1-2 should be off to prevent this.

After changing dip switches you must switch the printer off and on again for the changes to be recognised. ***JW***

EXPONENTIAL DECAY



Having written a simple ARexx script to generate a data file with x and y co-ordinates I need to calculate fractional exponents. All ARexx returns is Error: 48 (severity 10). This basically is telling me that I cannot perform an exponential to a fractional index. Is there any way around this? I know that in the mathsieeedoubtrans.library there is a function called IEEEDPEXP, but I do not know how to access external libraries from ARexx. Can you help?

Andrew Porter
Rotherham, South Yorkshire

You'll find all the technical details of external library ARexx interfacing in the *ARexx User's Reference Manual*. This can be obtained from the Amiga Centre Scotland (☎ 031 5574242) but there is incidentally a RexxMathLib library on Fish disk 227 which has been designed to make various high-level math functions such as sin, tangent, log, exp etc, easily available from ARexx. ***PAO***

FAST FORMAT



a) I am considering getting an expansion based RAM pack such as the Supra 500RX, but I am worried about compatibility problems. Can this sort of RAM be switched off?
b) How long will it be before Plus owners can buy programs confident they will work?
c) Are there any PD DTP programs for the A500 Plus? I'm having a lot of trouble finding PD that works on the Plus and I'd be grateful if you could mention this.
d) How can I format my disks using the Fast Filing system?

Stephen Richards
Barnsley
S Yorks

a) This is a case of horses for courses. Some external expansions such as the 500RX have disable switches, others don't. Generally speaking such things are an unnecessary gimmick because all software should support expanded RAM and the vast majority does.
b) How long is a piece of string? Every enhancement brings with it change and incompatibility. Time and time again, Commodore insists that developers follow strict rules to maintain upward compatibility; time and time again, programmers ignore the rules and problems arise. This should never happen; it does though. One exception affects the CDTV since the 1.3 Kickstart (which used to be considered sacrosanct insofar as the CDTV was concerned) is gradually being replaced by 2.x.
c) There is one called *Tex*, but this is very difficult to use. A much better system (Gold Disk's *PageSetter*) was given away with Issue 34 of our sister magazine, *Amiga Format*. Don't leave it too long though – back issues are in short supply. You may like to know, our PD columnist, Ian Wrigley also uses an A500 Plus so anything which runs on his machine should be work fine on yours.
d) You can do this from Shell using the following command to format a disk in the internal drive:

```
format drive df0: name ↵
empty ffs
```

Even so, fast filing system is not recommended for use on floppy disks because of its inherently lower redundancy. ***MS***

JARGON BUSTING • JARGON BUSTING

Bit – A binary digit, with a possible value of zero or one.

Byte – A collection of eight bits. A byte is the smallest unit of memory that a computer's processor can access.

Kickstart – The most basic and central part of the Amiga's operating system. These days it is held in ROM, so that it is immediately present when the machine is switched on. A1000s have Kickstart on a floppy disk meaning that on power up this disk must be inserted before the Workbench disk.

ROM – Read Only Memory is used to store essential programs, such as Kickstart and many of the library routines. These do not have to be re-loaded each time the Amiga is switched on because ROM retains its contents without power. No new information can be written to ROM, hence the name Read Only.

Startup-sequence – A program which is executed every time the Amiga is switched on and after every reset. It sets up the system so that it is usable from Workbench, and may be customised by those who have unusual hard or software requirements.

DTP STILL IN BITS

I wrote to you recently concerning missing lines of graphics during output to my Star LC24-200 using *PageStream 2.1*. Your reply suggested a memory insufficiency, and to confirm this by printing at a lower density.

This I did, and the output was OK. So I put it down to the above.

However I do require the higher density output so I bought a GVP HD8 hard drive plus 4Mb of memory. This has not solved my problem – only one page has been created and it is not that large (A4), with little print on it.

I have printed out on maximum density to a Citizen 9-pin with no problems, so I surmise a printer RAM buffer problem. However I don't have problems with *Deluxe Paint III* or other applications. Could I have an on-board RAM problem?

Peter Clark
Wigan
Lancs

I don't understand what you mean by "only one page has been created", but let's take this opportunity to learn a bit more about how DTP programs print pages to monochrome dot-matrix printers.

Keeping it as simple as possible, what they do is print a graphics dump of an enormous bitmap, which has to be created in memory first, either all in one go or in smaller strips if memory is tight. If you are printing an A4 page at 360 by 360 dots per inch, the full bitmap will be (8.27in * 360) dots wide by (11.69in * 360) dots high, which is 2,977 dots by 4,208 dots.

Now, if each dot on the page requires one bit of memory, this means we need 2,977 by 4,208 bits of memory to hold the complete page in memory – which works out at 12,527,216 bits; and as there are eight bits to a byte, this calculates to 1,565,902 bytes; and as there are 1,024 bytes to one kilobyte this works out to be 1,529K (about 1.5Mb).

If we were printing at 'half' that resolution, 180 by 180 dots per inch, that same page requires 1489 * 2104 dots = 3,132,856 bits = 391,607 bytes = 382k.

Your 9-pin Citizen, which has a top resolution of 240 by 216 dots per inch, requires 1984 * 2525 dots = 5,009,600 bits = 626,200 bytes = 612K.

Now I'm not saying that the above description is exactly how *PageStream* prints its pages – only the developers will know that – but it serves as an example of how doubling the output resolution requires four times the memory, not twice the memory.

It doesn't matter what's on the page, by the way, a completely blank A4 page requires the same amount of memory as one covered in text and graphics. The blank page is just a bitmap composed of lots of 'white' dots.

5Mb of memory should be plenty for *PageStream* to render a full A4 page at 360 by 360 dots per inch, unless there is something else using up that memory. Compugraphic fonts eat memory, the larger the font the more memory required, and because of the way *PageStream* works, bitmap (IFF ILBM) pictures take up a lot of memory as well. If your document has many pages with text and graphics on, all these pages are taking up memory even though you can't currently see them. I'd guess that you'd start having output problems if your document had four pages filled with Compugraphic fonts, and a couple of coloured bitmaps on each page.

The other problem is that the memory required for printing almost certainly needs to be all in one contiguous lump. As you work, importing things and moving around your document laying things out, the Amiga will allocate blocks of memory here and there as required, and when it comes to printing the page perhaps memory has become so fragmented that there isn't a large enough contiguous chunk left to render the page properly.

The answer might be to save your document, reset the Amiga to de-fragment memory, and load and print your document. This tip certainly works with *Professional Page* when the 'bits missing' output problem happens. You could also try splitting your document, saving it as separate pages, then loading and printing each page one at a time.

In my experience – and believe me I'm not just saying this because you have 5Mb of memory – in my experience I've found that almost all the DTP problems disappear once you get to 7Mb. This really is one problem that can be solved by throwing money at it. ***JW***

DO, DO RUN ROM

If have fitted my Amiga with a ROM switcher to enable me to use both 1.3 and 2.x Kickstarts. However, although the machine works fine under 1.3, it refuses to autoboot my Vortex hard disk when I switch to Kickstart 2. Could this be a problem with the personality module which was released before Kickstart 2?

A Mackerill
Swansea
South Wales

The Vortex system is getting a bit old now, but it should (theoretically) automount and autoboot under Kickstart 2 if it works OK with Kickstart 1.3. I have only come across this once before with an ancient A590 which showed a similar malady on the A500 Plus. You could try contacting Vortex Systemas, GmbH, at Falterstrasse 51-53, D7101, Flein Germany, to see if it has a more recent version of the ROMs. ***MS***

SOUNDING OFF

I recently bought the Omega Projects Sound Enhancer which is supposed to work at its best when the internal audio filter inside the Amiga is turned off. How do I do this? Programs like *OctaMED* allow you to turn it off from within the program but *Sequencer One Plus* does not seem to have such a facility. Because of this limitation have have been forced to run both *OctaMED* and *Sequencer One* concurrently just so that I can use *Sequencer One* with the Sound Enhancer. Is there a better way of getting around this problem?

John Griffiths
Hodderdon
Herts

The Amiga's audio filter is actually controlled through one of the peripheral control bytes in the Amiga CIAs which are located at HEX BFE001 (Decimal 12574721). If you have a copy of AmigaBasic then you can write a small program which could be placed in the startup-

sequence of your hard drive to automatically turn off the audio filter during boot up. Here's the code that will do the job:

```
A = PEEKB(12574721) XOR 2
POKEB 12574721,A
```

If you have access to an assembler, then the code is even simpler. All you need is a single line:

```
EORI.B #2,$BFE001.
```

This register actually toggles the audio filter on and off so all you need to do to turn the audio filter back on again is to run the code above a second time. ***JH***

BJ-130 DRIVER



I have recently bought a Canon BJ-130 printer and I am having all sorts of problems with printer drivers.

The BJ-130 driver in *PageStream 2.1* produces garbage, however the Epson 9-pin works perfectly. Also, the Workbench EpsonX[CBM_MPS-1250] driver works fine with Notepad and Graphicdump. But nothing that comes with *Pen Pal* or *PageStream II* works, nor any other program I have tried.

I would appreciate it if you could tell me where to get a suitable driver.

Peter Okleford
Mt Albert
New Zealand

You're right, the BJ-130 driver supplied with *PageStream* does not work with the BJ-130. I told Soft-Logik about this almost two years ago. Plainly the company didn't believe me.

What you need is the proper Workbench CanonBJ130 driver, which is on Jamdisk 2 and will cost you £5 air mail from: JAM, 75 Greatfields Drive, Uxbridge, UB8 3QN, United Kingdom. To use it with *PageStream* you should select *PageStream*'s 'Preferences' driver. ***JW***

PROTEXT LC-200 DRIVER



I've created a really good printer driver for the Star LC-200 printer for use with *Protext*, which makes use of all possible fonts, colours, sizes and pitches. Am I allowed to distribute it, or will Arnor get annoyed?

Adam S Pearson
Gateshead
Tyne & Wear

If your *Protext* Star LC-200 driver is bug-free and as good as you say it is, I should think that Arnor would probably be interested in including it on the *Protext Printer Drivers* distribution disk. If you play your cards right you might even be able to wangle a free copy of *Prodata* in return.

In the meantime, if anyone wants Adam's Star LC-200 driver – and remember, it's not a Workbench printer driver, it's only for use with *Protext 5.0* and later – then send a blank formatted disk and stamped, self-addressed envelope to: Adam S Pearson, 19 Camborne Grove, Gateshead, Tyne & Wear NE8 4EX.

(And Adam, speak to Arnor about your clock problem while you're at it. Ask for a free upgrade to the latest version, only don't tell them I told you to). ***JW***

MACHINE CHOICE



I am writing for some advice on buying an Amiga. When the A500 first came out I bought one and was very pleased with it. I had it for quite some time before having to reluctantly sell it.

Having lost touch with the Amiga scene I am not entirely familiar with the Amiga 1500, 2000 or 3000 ranges or their capabilities and I would be very grateful if you could tell me a little about all the machines currently available including the A500, A500 Plus and the new A600. I have a wide range of computing interests (not just games!) so I'd be very grateful if you could advise me on which model I should buy.

M Milne
Tankerness
Orkney

Which machine you buy depends entirely upon how much you wish to spend and what you want to do with your Amiga. Unless you are intending to use the Amiga for professional 24-bit graphics, then you don't really need one of the new high-end A3000 machines. If you intend to expand your machine quite substantially then an A1500 is for you. But if your needs are fairly minimal then go for an A500 Plus.

Anyway, here's a quick rundown of the Amiga range as it currently stands. I've tried to highlight which machines are good for which applications.

- **A500 Plus –** The replacement machine for the classic A500, the A500 Plus boasts 1 Mb RAM as standard and comes complete with Workbench 2 and the new Enhanced Chip Set which gives more screen modes, more chip RAM and a more capable blitter. The A500 Plus is ideal for games, small business use and amateur video, DTP, music and graphics work. A good all-rounder for home users.

UNSUCCESSFUL SID



I have just upgraded my revision 6.2 B2000 to Workbench 2. I have also installed the new Denise chip. I seem to be having a problem. Every now and again my monitor screen goes one colour with lines in another colour going up from the bottom of the screen to the top. When this happens my computer crashes. This problem happens at random and 95% of the time while I'm running *SID 1.06*. Is this a problem with *SID* or is it possible that one of my new upgrade chips is damaged?

Robert Hart
Roehampton
London

Not being a great fan of *SID* (until version 2 anyway), I haven't seen this problem before. It sounds like a software crash (the vertical lines are sprites gone mad), but this could be caused by a hardware problem – I'd need much more information to diagnose this problem. ***JR***

- **A600 –** The new A600 machine boasts a similar spec to the A500 Plus but is rather limited in its expansion capabilities. It can only be expanded to 4Mb RAM and cannot use A500 hard drives and RAM expansions that connect to the machine through the bus connector. It features an all-new ROM Card facility which enables software to be used which is stored on credit card sized ROM cards. Currently though, virtually no ROM card software actually exists. The A600 is good for absolutely nothing. Take my advice – don't even think about buying an A600, at least for the moment!

- **A1500/B2000 –** Both are virtually the same machine apart from an extra floppy drive which is fitted to the A1500 (which just happens to be the cheaper machine). Comes with 1Mb RAM (expandable to 9Mb), Workbench 2 and the new Enhanced Chip Set. Both machines are very expandable and feature separate keyboards. An excellent choice for both home and professional use.

- **A3000 –** Available in a number of different specifications, the A3000 is the flagship of the Amiga range. Based around the high speed 32-bit 68030 processor, the A3000 is available in both 16 and 25 MHz versions with either 50 or 100Mb hard drives as standard. Comes as standard with 2Mb Chip RAM expandable to 16Mb on board. Because of its price however, the A3000 is strictly for professional use only. ***JH***

C REQUESTER



Using Intuition from C, I want to display a requester using four string gadgets, all of which the user will usually complete. I'm OK so far but would like to save the user swapping between mouse and keyboard so that when the requester appears the cursor is already in the first gadget.. When the user presses [Return] I would like the cursor to move to the next gadget and so on. *Pagesetter II* does this – how is it achieved?

J Flynn
Yate
Avon

There is an Intuition library function that has been specially designed for this type of string gadget situation. It's called ActivateGadget() and the usage details are as follows:

```
ActivateGadget(gadget_p, ↵
window_p, requester_p)
gadget_p...... is a pointer ↵
to the gadget.
window_p...... is a pointer ↵
to the window containing ↵
the gadget.
requester_p... is a pointer ↵
to the requester structure.
```

The window and the requester must be active before the routine can be used with success. ***PAO***

MORE POWER



a) Since buying my Power Computing 1.5Mb expansion and converting to 1Mb Chip memory, RAD: has stopped working! When I do a warm boot everything gets lost – what can I do?
b) My machine has started crashing occasionally. Nothing too spectacular – the screen just goes grey. Is this due to a lack of power? If it is due to a lack of power, should I rig a separate PSU to my PC880A external drive?
c) My floppies have a habit of taking an extra five minute to boot load – producing a strange grinding noise from the drive. I can sometimes get round this by booting Workbench with the dodgy disk in DF1:. Why is this?

Jeremy Sharp
Newbury
Berkshire

SCART AND SWEET



Please could you tell me if I connect my Amiga to a video with a SCART socket will it make any difference to the picture?

Andrew Barham
Dagenham
Essex

Yes, if the SCART accepts analog red, green and blue signals, as most do. But do you mean video (ie VCR)? Or do you mean monitor? If you connect to a SCART VCR make sure that it is correctly connected to a SCART TV with a suitable SCART cable, not an RF (aerial) cable. The picture will probably get worse otherwise! ***GW***

a) RAD in the 1.3 Kickstart was not designed to function with 1Mb Chip RAM which is why the device gets confused and loses data. You can fix this bug by appending -R to the SETPATCH command in the startup-sequence, like this:

```
setpatch >nil: -r
```

b) This could be a virus, but it's more likely to be "one of those things". Computers crash like this from time to time – it's just life. It is very difficult to give a precise diagnosis unless this happens with certain pieces of software.

c) That grinding noise is a task conflict. Two tasks are trying to access the disk at the same time and the disk head is constantly thrashing between two separate points on the disk. This is usually caused by poorly written startup-sequences but in your case I suspect the culprit is something called the "disk validator".

It goes something like this: every time you insert a disk the validator ensures the structure is secure; this process normally takes a second or so. If a file has only be partially written the validator has to update certain structures on the disk – since this is being done while AmigaDOS attempts to run the startup-sequence, the disk head ends up flailing all over the disk. That's what all the thrashing noise is. Curiously, you can make this worse by write-protecting the disk!

The solution is simple. Boot a Workbench and place all the suspect disks in your external drive and wait for the drive light to go out. Watch carefully, it goes out for about a second and comes back on again for an instant – that's the validator. This happens every time you write something to the disk and you *must* let it complete before re-booting the machine. If you remove a disk before it validates you will get a message like "You must replace volume XYZ: in DF0:" ***MS***

CONFLICT OF CLOCKS



A few months ago I upgraded from a standard A500 to an A500 Plus. To ensure 100% software compatibility I fitted a Phoenix ROM Sharer and 1.3 Kickstart chip. Since then I bought a standard 0.5Mb memory expansion, but as the A500 Plus already has an internal clock I just ordered the version without a clock. However, when fitted, whether switched on or not, the 0.5Mb expansion disables the clock (ie messages of "Battery backed-up clock not found" displayed) I cannot imagine that the ROM sharer is to blame as this problem occurs in either 1.3 or 2.x mode.

Also, according to many sources the 0.5Mb expansions are supposed to work perfectly well on the A500 Plus, and I have yet to see any advertisement indicating otherwise. What's going on? If the ROM sharer is to blame what is the remedy? This is not an isolated incident. Two of my friends carried out exactly the same procedure with the same results.

I Cameron
Sacriston
Durham

With an A501 type card fitted, the internal clock is disabled and the clock on the card replaces the one on the motherboard. Commodore only recommends A501-type cards (with clocks) for use with the A500 Plus. While it should be possible to prevent such a card disabling the clock, I'm not sure how this is done. ***JR***

ANIMATION STATION



Can you please tell me what software I would need (if it is possible) to run my 'saved' game animations. I have *Deluxe Paint 4* and use a separate disk to store my animations. Is it possible to run my animations from this separate disk without having to load *DPaint 4* first? Is it possible to make an icon so that the animation can be run from Workbench or will I need a programming language like AMOS?

Markus Witcomb
Telford
Shropshire

All you need is the *Animation Player* program which is on your *DPaint* Animations disk. This will allow you to run animations from the Workbench without having to load *DPaint* first. ***JH***

DATABASE DILEMMA



I am trying to write a database program which will use random access files to record the different counties contacted via Amateur Radio. The file will have 373 records each of 138 characters (flag 1 byte, country-name 27 bytes, prefix 10 bytes, status 9 times 1 byte, confirmation 10 times 9 bytes) and a hashing algorithm will be used to convert country-name to a record number. I've written a test module to set up blank records, write data to them, and then read the data back and this works OK. A similar program to amend a record however just deletes the existing data and writes the new data as the first record. I've enclosed listings of the test modules – can you please advise me on what is wrong.

GR Gauntlett
Sprottbrough
Doncaster

Before I try and give you an answer can I make a general plea to everyone thinking of sending in program listings: don't bother. We are more than happy to help you with programming problems, to offer advice and general guidelines. We are not interested in trawling through pages and pages of listings to find your bugs. If you want to write programs, then you must also learn the necessary patience to debug your own programs.

Anyway, just this once...

As far as your second module is concerned I can see one thing that is obviously wrong – the file has not been opened for appending data. It has been opened for writing new data whilst discarding the previous contents.

In short you've written...
`output=fopen(filename,"wb")`
when you should be using...
`output=fopen(filename,"ab")`
if you are just writing, or...
`output=fopen(filename,"a+b")`
if you want to read and write. ***PAO***

PC MONITORS



My question involves the use of a PC monitor with my Amiga 1500, which I bought after I became frustrated with the lack of flexibility of my ex-work 3270 PC system. I thought, however, that I would be able to use the PC's monitor with my Amiga, but this is where my problems started.

The monitor, labelled IBM 5272 colour display, is connected to the outside world with a 9-pin D-type connector. I looked up the pin assignments in the manual and made a lead to connect my Amiga to the monitor, linking what I thought were the correct pins. But although the monitor seems to display the correct colours the picture is continually rolling and breaking up.

The monitor pins are as follows:

1 to 4	**Not connected**
5	**Green**
6	**Blue/Intensity**

JARGON BUSTING • JARGON BUSTING

Binary – A special number format, consisting of only two numerals – 0 and 1. It is used by computers to store all information.

Database – An applications program that enables information to be stored and retrieved in a structured manner. Information can be categorised according to a user's preference, and searched for according to user-specified criteria.

Directory – An organisational method of storing files on a disk in a heirarchy. A directory is a sub-section of a disk which may contain files and/or further directories. In this way, similar files can be grouped together.

Flicker fixer – A card that removes the flicker from the Amiga's interlace mode and the visible scan lines in the non-interlace mode. Interlace mode is the Amiga's way of doubling the vertical screen resolution, but normally by effectively halving the screen update rate and creating flicker.

Font – The group of letters, numbers and special characters that comprise on variation of typeface, eg: 12pt Times, 12pt Times Bold, 12pt Times Italic. Sometimes (mistakenly) used in desktop publishing to refer to a type family.

Task – A program running in memory. Under multi-tasking, each task appears to have its own 68000 processor, without having to worry much about other tasks interrupting it.

7 Red/Video
8 Horizontal Sync
9 Vertical Sync

I know the 3270 computer does not use the standard CGA graphics card but contains both an APA (All Points Addressable) display adaptor and a PS (Programmed Symbols) card, which I believe are to do with its use as a mainframe terminal emulator. Does this have any bearing on the type of monitor it uses? Can I use this monitor with my Amiga or will I have to purchase a new one? My eyes are going funny trying to use my TV!

Brian Parker
Hemel Hempstead
Herts

The 3270 PC is an old type of AT computer, and a search through documentation archives by IBM's Enquiries department (☎ 081 747 0747) came up with nothing of use regarding the 5272 monitor, though there were mentions of it. I suspect this lack of information is to do with the fact that the monitor in question is mid-1980's vintage. The gentleman at IBM enquiries suggested I try a couple of its dealers which had (possibly) sold these items in the past, but again I drew a puzzled blank.

Perhaps if there is anyone out there who can shed some light on Mr Parker's problem they might like to contact *Amiga Shopper*. ***GW***

LOCK ON

Occasionally, the Caps Lock key flashes on and off and the keyboard locks. Is there something wrong with the keyboard wiring and what should I do?

Aftab Khan
Shepherds Bush
London

It's difficult to say exactly what is wrong with your machine but the indications point to a spurious hardware fault in the keyboard processor. The only recourse for this sort of thing is to get the machine serviced by a recognised repair outfit such as FMG or WTS Electronics. ***MS***

GOOD CITIZEN

I recently received my free copy of *Citizen Print Manager*, read the instruction leaflet and the ReadMe file, together with your more in-depth article on *TurboPrint Professional* in the April edition, which I found far more educational and recommend to anyone with *Citizen Print Manager*.

As you state, the new printer drivers are a vast improvement over the Workbench ones, especially for graphics. I use an installed copy on a separate floppy disk, but to really appreciate the software I would like to install it on various program disks. However I find that *Citizen Print Manager* takes up a lot more disk space than Citizen claims.

Would it therefore be possible to pare down a working copy of *Citizen Print Manager*, to make it a lot smaller? If so, what gets deleted? I, for instance, am only interested in the Swift 24 driver.

Terry Birch
Castle Donington
Derby

It's easier if I say which files you need, rather than which you should delete.

OK, let's start with a blank disk, which we'll call the Swift24 disk for the purposes of this example.

You need 'PMPrefs' and 'PMPrefs.info'. You only need 'NoPM' and 'NoPM.info' if you have the need to remove *Print Manager* from memory. So copy both these files to the root directory of the Swift24 disk.

You need the whole CONFIGS directory (there's only one small file in there), so copy that CONFIGS directory from the *Print Manager* disk into the root directory of the Swift24 disk.

Next create two directories in the root directory of the Swift24 disk, called PM and PRINTERS. Into the PM directory copy the files called 'tde', 'tt0' and 'tt1' from the PM directory on the *Print Manager* disk – that's Tee Dee Eee, Tee Tee Zero and Tee Tee One, just in case of confusion.

The other 'tt' files are for when you select another language from the *Print Manager* front panel.

Into the PRINTERS directory on the Swift24 disk copy the 'Swift24.m' file from the PRINTERS directory on the Print Manager disk.

And that's it. Comes to about 120,000 bytes all told.

Now copy the entire contents of the Swift24 disk on to any of the program disks you want *Citizen Print Manager* to be on. If you haven't got 120,000 free bytes on a program disk, *Citizen Print Manager* won't fit unless you 'crunch' the PMPrefs program with something like *PowerPacker Professional*, which will probably give you another 40,000 bytes or so of room. ***JW***

DARK SIDE OF THE DJ

Whenever I try to print IFF images from *PageStream* to my DeskJet 500 they always come out too dark. Is there a simple solution to this?

Would I get better quality if I converted to halftone and, if so, which is the cheapest way to do this? (*PageStream* can do this but the quality is no better.)

Alan Hargreaves
Stoke-on-Trent

Not quite sure what you mean by "convert to halftone". Of course *PageStream* does this, that's how it manages to print coloured pictures on a black-and-white printer.

What I think you mean is would you get better quality if you first converted your coloured picture to 16 levels of grey? And the answer is yes, probably, but then you'd need to lighten the darker shades of grey.

What you really need is *The Art Department* – not necessarily the Professional version, the cheaper, cut-down version will do. This package will convert to grey for you and then allow you to play with the brightness, contrast and gamma levels of the picture, as well as apply a number of dithers which will further enhance the output.

If you're waiting for me to tell you how to do it for next to nothing, then you'll be waiting a long time. Good software tends to cost money. ***JW***

KICK IT IN!

Whilst using *Demolishers Utilities* which I obtained from United PD (Disk PU040) I came across a utility which claims to be able to load a Kickstart from disk into RAM. Once loaded, the system then treats this as ROM and reboots the machine under this new Kickstart version. Where can I get my hands on copies of Kickstart disks 1.3 and 2.04 and how much would they cost?

Morvyn Myles
Perth

I presume the PD program that you are referring to is either *ZKick* or *KickIt*; two utilities which were written to enable developers to install pre-release Kickstarts (held on disk as binary files) to be loaded into RAM and then used as if they were 'real' Kickstart chips. Unfortunately, although the programs themselves are PD, the Kickstart files that they feed upon are strictly copyright of Commodore UK. Unless you are a registered developer, it is very unlikely indeed that you will be able to obtain Kickstart 2.04 as a binary file (1.3 is not available in this format).

If you do manage to get a copy of a Kickstart file, then trash it immediately unless you want a letter from Commodore's solicitors to drop on your door mat. If you really need to be able to switch between Kickstart versions, then a Kickstart ROM sharer board is probably your best bet. These boards enable you to switch between two different Kickstart chips. The one I use (and recommend) is the Change Kickstart board from Cortex. It costs £30 and is available from Cortex ☎ 051 236 0480. ***JH***

FOUNTAIN OF TROUBLE

I have attempted to use Fountain as supplied with Workbench 2.04. I have followed the instructions given in the manual to add the ASSIGN statement to the User-startup file but when I double click on Fountain I get the message "cannot open diskfont.library V37". Can you help me get Fountain running? I did try

FIXING THE FLICKER

I own an Amiga 1500, recently upgraded to WB 2.04, including the Super Denise. My problem is that when I try and select 'productivity mode' the picture completely crashes, (going white and flashing) forcing me to soft boot. But if I use any of the other screen resolutions it's perfect (and flicker free). Is this because I am trying to put the signal through the equivalent of two flicker fixers (ie Super Denise and the ICD flicker fixer), or because I had to make the connecting cable from the ICD board to the monitor myself?

Nigel Bates
Nuneaton
Warwickshire

It could be your lead causing this problem, as I'm not aware of any compatability problem with the ICD Flicker Free Video and the Super Denise chip. I wouldn't get too worried about it: productivity mode is about as useful as a chocolate teapot if you've already got a flicker fixer. ***JR***

writing to Commodore – but have received no reply as yet.

J Davies
Forest Hill
London

One possible answer is to re-assign the LIBS: assignment to the fonts disk which contains the new version of diskfont.library. A typical example might read:

```
assign libs: ↵
fonts2.04:libs:defer
```

My personal preference is to throw away diskfont.library V36 (on the Workbench disk) and replace it with V37 from the fonts disk. You can do this as follows:

a) Use Workbench's Show…All files on the Workbench and Fonts disks. This will reveal the two "Libs" drawers.

b) Open the "Libs" drawer on the "Fonts" disk and locate the diskfont.library.

c) Now drag the diskfont.library icon from the Fonts disk to the "Libs" drawer on the Workbench disk. ***MS***

BRIDGEBOARD WORRIES



I have an Amiga 2000 (Workbench 1.3), two floppy drives, 5Mb memory (Golden Image card), an XT Bridgeboard with 5.25" drive, and a 20Mb hard drive. I have a few questions:

a) I can't boot the Bridgeboard with my Amiga memory expansion card plugged in (Bridgeboard hard disk works fine without the card). After booting it will ask me to insert JHD or it will just crash.

b) My internal and external disk drives seems to be incompatible. (files saved on one drive can't be read by the other; but new software can be read by both drives)

c) If I upgrade to the new ECS chip, will my 1Mb in the A2000 be converted to Chip RAM?

Michael Thien Wei Seng
Singapore

Dealing with your questions one by one:

a) It sounds like your memory board is incompatible with the Bridgeboard. Try to replace it with a different board (the Commodore, Microbotics and ICD cards all work with the Bridgeboard).

b) One (or both) of your drives need to be looked at professionally. It is not an easy task to re-align the heads on Amiga floppy drives, so let the experts at an Amiga repair centre look at them.

c) As long as you have a B2000 (with the composite video output at the back next to the sound outputs), you should have no problem converting to 1Mb Chip RAM. Earlier A2000s (without the composite video output) used the same chips as the Amiga 1000, and are not upgradeable. ***JR***

SERIAL MURDER



I have been trying for ages to get a Brother HR-15 daisywheel printer to print from my Amiga 500. The problem is that I don't know the right questions to ask, so the only advice I got from Brother technical support was that it is a serial printer.

Is my printer compatible with my Amiga? There is a driver on the Extras disk called Brother_HR-15XL, is this close enough to work?

As I do not have a manual for my printer, can you tell me which cable I need? Could you give me the pinouts so that I can make one myself.

JE Gould
Waltham Abbey
Essex

Yes, the Brother_HR-15XL driver should work perfectly. To make a cable for the printer you'll need details of the Amiga's serial port and the printer's serial port – look in the Amiga manual for the former, and speak to Brother about the latter. Ask if it can send or sell you a manual, or at the very least a wiring diagram for the HR-15's serial port, plus details of the dip switch settings.

I warn you though, wire the cable wrongly and you'll blow up the Amiga's serial port. Unless you are experienced at this sort of thing I suggest you gather all the required details and give them to someone who knows what they are doing. ***JW***

MAC AND ME



In issue 13 of *Amiga Shopper* (page 154) you printed a review of *MessySID 2* in which you stated that the above program could be used to transfer Amiga files to and from the Macintosh. I bought the program but have since found that the claims that you make in the review are simply not true. Am I doing something wrong? If so, could you please tell me how to transfer files between the Amiga and Mac using *MessySID*.

Evangelos Michailidis
Fallowfield
Manchester

I'm afraid you've got the wrong end of the stick, Evangelos. As it currently stands, *MessySID* cannot directly read and write Macintosh format diskettes – it can only handle Amiga and MSDOS-format disks. To transfer a file from the Amiga to the Mac using *MessySID* you need a Macintosh that has a high density disk drive and a copy of the Mac program *Apple File Exchange* (this is given away with *Mac Finder*). This program allows the Macintosh to read and write standard 720k MSDOS disks (like those produced by *MessySID*).

As you can see, the whole process of transferring files to the Mac using *MessySID* relies entirely upon the Mac's ability to access MSDOS disks. If your Mac doesn't have a high density drive, then *MessySID* cannot be used for this purpose.

If you really need to transfer files to and from the Mac, then there are two options available to you. The cheapest is to treat yourself to a Mac to Amiga null modem cable and then use communications software running on both machines (something like *NComm* on the Amiga and *Red Ryder* on the Mac) to transfer the files down the null modem cable. This can be a rather slow process when you're transferring larger files (IFF images, for example), but it's very cheap.

If money is no object then treat yourself to a copy of Central Coast's *Mac2DOS*. This hardware and software combination will allow you to connect a Macintosh 800k disk drive to the Amiga and read and write files to Macintosh format diskettes with ease.

Expect to pay around £300 for the privilege though! *Mac2DOS* is available from HB Marketing ☎ 0753 686000. ***JH***

NOT MY PAL



Every now and then my computer seems to switch into NSTC mode after a guru or when I perform a soft reset. I have been told by a friend that I may have an American processor which could result in the machine coming up in NTSC instead of PAL. Is there anyway of stopping this?

Also, is there any way to tell if another disk drive is present during the startup-sequence? Finally, my clock has reset back to 1978. Has this been caused by a virus?

Calum Metcalfe
Middlesbrough
Cleveland

NTSC on reset is a common and well known bug in the 1.3 Kickstart ROM – even the CDTV suffers from it! You can get round it using a little PD program (available from all good PD libraries) called *NoPalReset*.

You just insert *NoPalReset* in the startup-sequence and if the machine tries to boot in NTSC, *NoPalReset* then resets the machine (and will keep on doing so) until it boots in PAL.

It is possible to check for the presence of another disk drive during startup. With your 1.3 Kickstart and AmigaDOS, it is not very practical since the command causes a requester to appear.

Your clock could have lost its time for two reasons: first, the battery may have run down; second it might have been affected by a rogue program running riot through the machine.

You can charge the battery by leaving the machine (not the monitor) switched on for 24 hours and reset the clock using the following command:

```
setclock reset
```

That should fix any problems that may have been caused by a rogue – not necessarily a virus. ***MS***

JARGON BUSTING • JARGON BUSTING

ECS – Extended Chip Set is the name given to the new versions of the Amiga's custom chips that handle graphic, sound, memory and so on.

Library – The Amiga has many special features, and programs are already present in the operating system to make use of these features. These programs, or library functions, may (and should) be used by applications programs, obviating the need for each programmer to write a similar set of routines.

NTSC – National Television Standards Committee. This is the name for the TV colour coding system used in the USA and other countries. It has 525 lines, running at 60 fields aand 30 frames/second. It is often, and perhaps unfairly, japed at as Never Twice the Same Colour by PAL standard users.

PAL – One of the main TV colour coding system (with the exception of France's SECAM system), which is in use around the world and was developed in Britain. PAL refers to Phase Alteration Line. In fact, there are several hybrid PAL systems in use, all of which are slightly different.

Serial port – An interface port at the back of the Amiga, used for connecting to a modem. Sometimes used for printers.

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LISTINGS

We're on the lookout for programs in any language which is supported on the Amiga, and we'll pay £20 for any that we publish.

Programs of any type are admissable: serious and useful, wild and wacky, or stunningly creative. Just remember that we can't print listings that rely on binary files for sprites, samples and so on.

All you have to do is pop your program on an AmigaDOS disk (along with source code if it is compiled or assembled) and send it to us at the following address:

We want your listings! Display your programming prowess before your fellow Amigans and earn fame, fortune and everything that goes with it (well, £20 anyway...)

Listings
Amiga Shopper
Future Publishing
30 Monmouth Street
Bath
BA1 2BW

Don't forget to include a stamped addressed envelope if you want your disk returning. Some form of printed documentation would be nice, too.

This month we've got two listings from Fu Sang Li of Hackney in London, who'll be receiving £20. They're both written in C, and complied with the PD package *NorthC*. The first, handily named *SR*, is a text search and replace utility run from the Shell. Type sr, followed by the text filename, then the text to be searched for and the text with which it is to be replaced. Two switches are permitted: '/c' instructs the program to be case sensitive; '/p' asks it to prompt you before making any changes. The second program, *TS*, is a text search program. It will accept the '/c' case sensitive switch, and list occurrences of the matched string in the text file.

Remember: give us your listings!

LISTING 1

```
/* Search-and-Replace utility by Fu Sang Li */
#include<stdio.h>
#define OFF 0
#define ON  !OFF
#define BACKUP_FILE "backup"
void check_case();
main(argc, argv)
int argc;
char *argv[];
{
FILE *src_fp,
   *des_fp;
char word_buff[256], line_buff[512], case_sens=OFF,
   prompt=OFF, ch, ch2, write_err=FALSE;
int i, j, k; long line_no=0, exchanges=0;
   if(argc<4)
      printf("\nUsage: SR <Filename> <Search-Text> <Replace-
Text> [/c] [/p]\n\n");
   else
   {
      *(argv[4]+1)=tolower(*(argv[4]+1));
      *(argv[5]+1)=tolower(*(argv[5]+1));
      if(!strcmp(argv[4], "/c") || !strcmp(argv[5], "/c"))
         case_sens=ON;
      if(!strcmp(argv[4], "/p") || !strcmp(argv[5], "/p"))
         prompt=ON;
      if(src_fp=fopen(argv[1], "r"))
      {
         if(des_fp=fopen(BACKUP_FILE, "w"))
         {
            do
            {
               ch=fgetc(src_fp);
               if(!feof(src_fp))
                  if(fputc(ch, des_fp)==EOF)
                     write_err=TRUE;
            }
            while(!feof(src_fp) && !write_err);
            fclose(src_fp);
            fclose(des_fp);
            if(!write_err)
            {
               src_fp=fopen(BACKUP_FILE, "r");
               des_fp=fopen(argv[1], "w");
               while(!feof(src_fp))
               {
                  fgets(line_buff, 512, src_fp);
                  line_no++;
                  i=0;
                  j=0;
                  while(line_buff[i])
                  {
                     ch=line_buff[i];
                     ch2=*(argv[2]+j);
                     check_case(case_sens, &ch, &ch2);
                     if(ch==ch2)
                     {
                        while(ch==ch2)
                        {
                           word_buff[j++]=line_buff[i++];
                           ch=line_buff[i];
                           ch2=*(argv[2]+j);
                           check_case(case_sens, &ch, &ch2);
                        }
                        if(j==strlen(argv[2]))
                        {
                           if(prompt)
                           {
                              char s[2];
                              printf("\nLine %ld:\n%s",
line_no, line_buff);
                              printf("<CR>-Exchange, S+<CR>-
Skip: ");
                              gets(s);
                              if(!strcmp(s, ""))
                              {
                                 fputs(argv[3], des_fp);
                                 exchanges++;
                              }
```

```
                    else
                       fputs(argv[2], des_fp);
                 }
                 else
                 {
                    fputs(argv[3], des_fp);
                    exchanges++;
                 }
              }
              else
              {
                 word_buff[j]='\0';
                 fputs(word_buff, des_fp);
              }
              j=0;
           }
           else
              fputc(line_buff[i++], des_fp);
        }
     }
     printf("\nDone!  Exchange(s): %ld  ",
exchanges);
     printf("(Orginal file backed up in
'backup'.)\n\n");
     fclose(src_fp);
     fclose(des_fp);
  }
  else
     printf("\nNot enough disk space for backup
file!\n\n");
  }
  else
  {
     printf("\nError opening backup file!\n\n");
     fclose(src_fp);
  }
 }
 else
    printf("\nError opening %s!\n\n", argv[1]);
 }
}
void check_case(case_sens, ch_p, ch2_p)
char case_sens, *ch_p, *ch2_p;
{
   *ch_p=case_sens?*ch_p:toupper(*ch_p);
   *ch2_p=case_sens?*ch2_p:toupper(*ch2_p);
}
```

LISTING 2

```
/* Text Search utility by Fu Sang Li - 13 May 1991 */

#include<stdio.h>
#define OFF 0
#define ON  !OFF

void check_case();

void main(argc, argv)
int argc;
char *argv[];
{
FILE *fp;
char line_buff[512],
   case_sens=OFF,
   ch,
   ch2;
int i,
   j,
   freq;
long line_no=0,
   count=0;

   if(argc<3)
      printf("\nUsage: TS <Filename> <Search-Text> [/c]\n\n");
   else
   {
      if(!strcmp(argv[3], "/c") || !strcmp(argv[3], "/C"))
         case_sens=ON;

      if(fp=fopen(argv[1], "r"))
      {
         while(!feof(fp))
         {
            fgets(line_buff, 512, fp);
            line_no++;

            i=0;
            j=0;
            freq=0;
            while(line_buff[i])
            {
               ch=line_buff[i];
               ch2=*(argv[2]+j);
               check_case(case_sens, &ch, &ch2);

               if(ch==ch2)
               {
                  while(ch==ch2)
                  {
                     i++;
                     j++;

                     ch=line_buff[i];
                     ch2=*(argv[2]+j);
                     check_case(case_sens, &ch, &ch2);
                  }

                  if(j==strlen(argv[2]))
                  {
                     freq++;
                     count++;
                  }

                  j=0;
               }
               else
                  i++;
            }

            if(freq>0)
               printf("%d occurrence(s) in line %ld.\n",
freq, line_no);
         }

         if(count>0)
            printf("\n'%s' contains %ld occurrence(s).\n\n",
argv[1], count);
         else
            printf("\nNo occurrences of '%s' found in
'%s'.\n\n", argv[2], argv[1]);
      }
      else
         printf("\nError opening '%s'!\n\n", argv[1]);
   }
}

void check_case(case_sens, ch_p, ch2_p)
char case_sens,
   *ch_p,
   *ch2_p;
{
   *ch_p=case_sens?*ch_p:toupper(*ch_p);
   *ch2_p=case_sens?*ch2_p:toupper(*ch2_p);
}
```

TIP TOP TITLING

Gary Whiteley makes the headlines with some terrific titling tips, and shows you how to win friends and influence people with the new Smooth Talker and Hama genlock

Since the first Amigas were released in 1985 it has been acknowledged that one of their outstanding applications is for adding graphics and titles to video images. Judging by the number of different genlocks on the market and the range of titling and painting programs available, this fact hasn't escaped the manufacturers and retailers either. No surprise since many Amiga owners have access to at least one VCR or camcorder, and a lot of video owners will have access to an Amiga, by rental, purchase or through friends and relatives.

The cost of video production equipment has reached the point where access is potentially available to millions of people, at many levels. The quality and specifications are increasing, while prices continue to fall and equipment which was available only to specialised video companies 10 years ago has become more affordable and increasingly popular. A desire to emulate the professionals, or even become one, is a logical step forward for many Amiga video users.

Bearing all this in mind, and knowing that many of the Amigas in 'serious' use are employed in video and graphics production, I thought that it might be worthwhile giving you a few hints and tips to help you to improve your own titling efforts.

GETTING STARTED

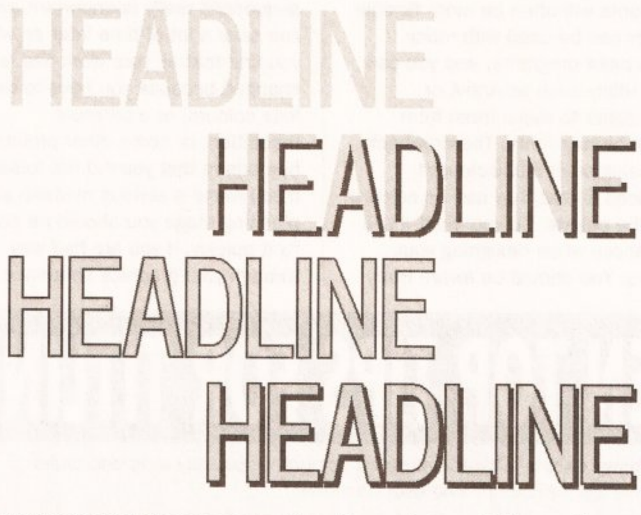
To use your Amiga for video titles and graphics, there is a minimum amount of equipment required. At the very least you'll need an Amiga (with suitable software, of course!), a modulator, a VCR or camcorder and a TV set. I'd recommend that the Amiga has at least 1Mb Chip RAM and not less than 1Mb Fast RAM. Some programs will require a lot more than this to produce their best, and the power of programs such as *DeluxePaint* can be greatly increased by adding another megabyte or two of RAM. If you are thinking of buying an Amiga for video use, please don't be fooled into thinking that a brand new, straight-out-of-the-box Amiga is all you need to get instant TV-quality graphics and special effects. It isn't – it's only a start. You'll need to add more to it, such as memory, extra disk drives, maybe a hard drive. If you're short of the folding stuff then extra memory is definitely more important than a second disk drive. And if you're really serious about graphics a hard disk, and even an accelerator card, should be considered too.

The same points apply about video equipment, and the amounts and costs usually increase in proportion to the quality you require and the format you wish to use. It's possible to buy anything from purely domestic VHS quality equipment to full broadcast specification gear. While a simple domestic quality VHS rig might cost less than £1000 in total, a top end digital setup could cost hundreds of thousands of pounds, when you take into account all the video recorders, monitors, high quality genlocks and other hardware needed at this level.

An average setup would probably include a genlock, maybe a video camera, second VCR and extra monitor/s. But the cost and amount of equipment is not what concerns me here, because whatever level you are working at, and whatever your titling needs, you may be interested to know that there are a number of simple things which can be done to effectively improve your image.

JARGON BUSTING • JARGON BUSTING

Modulator – An electronic gadget used to convert the RGB output from the Amiga into a video signal acceptable by a standard TV set aerial socket; other outputs such as composite video and audio may be included.

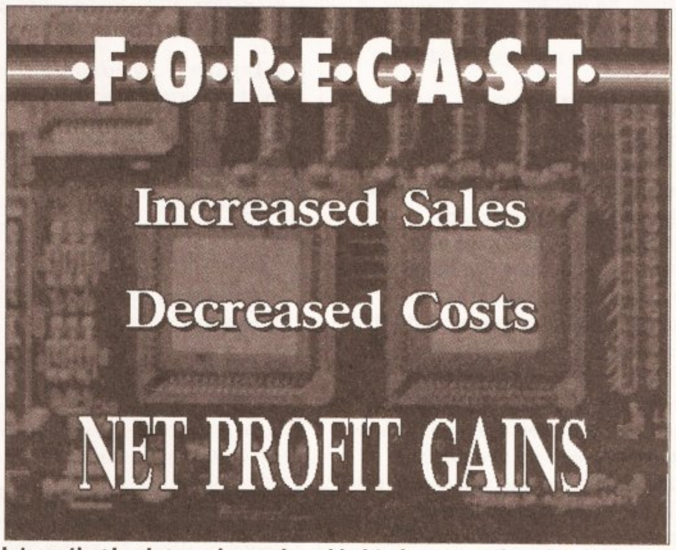


Much more prominence can be given to words by outlining or drop-shadowing them, as you can see in the above examples

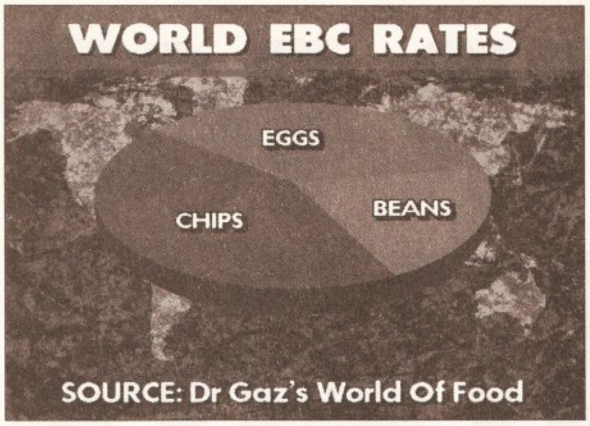
CARE WITH COLOUR

One of the simplest, and most important, ways of getting a better looking picture involves choosing appropriate colours to work with. You should always try to avoid using heavily saturated colours such as deep reds and blues, as these tend to 'bleed' on video, and therefore don't usually look too good at all. Light colours and pastel shades tend to work best, especially for lettering. There are technical reasons for this which revolve around the fact that a colour television picture is composed of two parts – a monochrome video image (the luminance part of the signal) which is usually sharp and high quality, and a colour part, which is where the problems start. In simple terms, adding colour (the chrominance element) reduces the picture quality and smearing starts to set in. Because this smearing (or chroma crawl) is worse with highly saturated colours, the degradation becomes more noticeable when deep reds and blues are used.

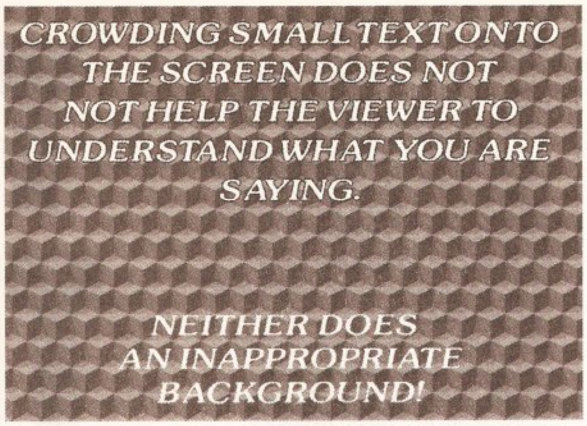
If you have no choice but to use such colours, you could try putting a dark outline around lettering and logos, rather like the outlines on cartoon characters. You'll find that the text becomes more readable



Interesting backgrounds can be added to improve otherwise dull test. In this case it's a treated digitised image, but it could be live video instead. Be careful not to obscure the text though!



With enough memory, a good collection of artwork (in this case a Scala background and a PD world map) and typefaces you can create some great images on the Amiga



Don't make the mistake of putting too much text on a page! Some backgrounds are unsuitable and can distract from the headline. (Just as well when there's a typo!)

because the edges are less smeary. Text can be made smaller if need be.

If you have enough memory available use the highest screen resolution your software permits. This will help to reduce the jaggies, as you'll be using smaller pixels to draw with, and your graphics will look sharper. Remember that it's not always necessary to have 32, or even 16, colours on screen, so even 1Mb Amigas have a chance of producing something good. I only use HAM for text if I really have to, as the fringing effects this mode produces can sometimes make the whole thing look messy, and its highest resolution is Interlace.

You should always use an Overscan screen size if you can, then you won't risk the possibility of cutting your graphics off at the edges of the screen. Unlike the Amiga's 'standard' screen sizes (eg 320 x 256, 640 x 512 etc) which do not cover the whole of a normal TV screen, overscan screen sizes (eg 352 x 290, 704 x 580) stretch beyond the edges of the average TV screen and so really *are* full screen. This is important, especially where information moves on and off the screen, for instance with scrolling or crawling text, otherwise unacceptable cropping could occur.

LOW STEPPING

Anti-aliasing can also be a great help in improving the look of your presentations. Instead of the usual jaggy edges which plain non-horizontal or vertical lines take on, a degree of smoothing can be achieved by using intermediate tones to visually soften the staircase effect. If you have ever used *DeluxePaint IV*'s anti-aliasing functions you will be aware just what improvements can be made. But even if you don't have *DPaint IV* and have to make the adjustments by hand you should still find the extra work worthwhile because the end result is usually immensely improved.

Smoothing text can be a more difficult proposition altogether, as *DeluxePaint IV* cannot do this directly while adding type to a picture, which is a pain. Even 24-bit paint programs leave something to be desired here, so the best option is to use pre-processed fonts, either as Colorfonts (which are special multicoloured bitmap fonts) or proprietary fonts such as those provided with programs like *Broadcast Titler 2*. Colorfonts will often be more flexible as they can be used with many Amiga paint programs, and you can use a utility such as Anti-A or Calligrapher to make them from normal bitmap fonts. The drawback with using such multicoloured typefaces is that they use up colours from the palette, so you must make allowances when designing your images. You should be aware that some of the more expensive titling programs, most notably *Scala* and *Broadcast Titler 2*, can perform anti-aliasing on typefaces directly, which is often a great aid to producing quality results.

PLANNING

It might seem an obvious tip to give, but planning your titles and graphic sequences really is important and can save a lot of time later on when you find that all your work has to be changed because you have to use less colours, or a different resolution, or some other problem has arisen that you did not foresee. If you make a serious mistake at the planning stage you should be able to fix it quickly. If you are half way through your graphics sequence you might just have to start over.

There are many aspects of graphics and titling which require at least some degree of planning. Colour choices, for instance. How many colours do you really need? Will you be using ColorText? Will different pages need different palettes? Do some colours need to be reserved for a logo? What colours will be needed for the text? This is just the start.

But don't worry, many of the choices you have to make will be based upon need. Certain colours and typefaces will have to be used. Layouts often become obvious because of the nature of the work.

CREDIT SEQUENCES

As for the content of the images, a lot of this can be pre-planned too. If you are preparing a credit list for a video it makes sense to get a list of all the names which have to be included, (making sure that you spelt them all correctly!), ensure that you know what everyone's role was and in which order (and what relative type sizes) they appear in. You may be provided with a brief for this from the director, but more likely than not you'll have to sort most of this out yourself – especially if you are the director. Once you have all the information to hand you can start designing the credit sequence. If you don't have a brief you will probably have to make some choices – will the sequence be scrolling up the screen, or appear page by page, or crawl along the bottom of the page? Will there be transition effects which need adding, such as wipes?

If you are animating a flying logo with *DPaint* you may find that drawing up a storyboard will help you visualise the sequence you want. Even quick notes and sketches can help and jog your memory when the going gets rough. And believe me, it *does* get rough. Planning can save your bacon. Because anything that can go wrong will. It always does.

You will inevitably have to make some compromises to accommodate your software and computer setup, but try to follow the plan as closely as possible. If you are doing the work for someone else check with them first and explain the problems. Usually changes can be mutually agreed and everyone stays happy.

Even if you're just titling your home video there's no need to be short of ideas. Watch TV and learn techniques from what you see there. Notice which typefaces are used, which sizes and which colours. Decide what works for you and what doesn't. Experiment with your Amiga. Play and practise. Accept that you will have failures, but make sure that you learn from them so that you can get it right the next time.

TEN TOP TIPS FOR TITLING

- **Colour choice** – Avoid saturated colours, especially reds and blues. Choose lighter colours wherever possible.
- **Screen size** – Use overscan formats whenever possible, then graphics won't be cut off before the edges of the screen.
- **Graphic size** – Avoid small graphics and typefaces – they can be difficult to read and transfer badly to video. Avoid lines less than 2 pixels wide.
- **Layouts** – Lay out graphics so that they are balanced and well spaced. Don't overcrowd them. If they are easy to read the message will get across.
- **Timing** – If you have something to communicate at least give the viewer time to read it fully.
- **Typefaces** – Whole books have been written about typeface usage. Basically, use a typeface to reflect the content of your title. Design your own if necessary. But don't be afraid to mix it up a bit.
- **Backdrops** – Under the right circumstances a well chosen backdrop can greatly improve a title.
- **Anti-aliasing** – Smoothing out the jaggies will often improve the look of your graphics enormously.
- **Be appropriate** – Stick to the subject. Keep it snappy. Make it stick. And don't add extras that aren't necessary!
- **Viewing distance** – Remember to step back from the Amiga monitor from time to time and check your work from a more realistic viewing distance. Nobody watches TV at the distance a computer monitor is viewed from.

And don't forget the planning!

SMOOTH TALKER

The easy way to make friends in the TV studio

GARY TO READER

Cue 1
Have you ever wondered why a newscaster often seems to be shiftily glancing about while he talks? Or how a studio presenter appears to have a wonderful grasp of even the most obscure of subjects?

Cue 2
Well, I can now reveal that it's all done with mirrors. And computers, video monitors and bits of wire.

Have I lost you? OK, let's go back to the second cue and start again.

Cue 2
Well, I can now reveal that it's all done with mirrors. And computers, video monitors and bits of wire.

Got it yet?

I'm talking about autocue machines, or teleprompters; feeding scripts to talking heads while they smile at the camera and demonstrate how knowledgeable they are. I'm talking about *Smooth Talker*, a newcomer to the illustrious (and hitherto unspoken) history of teleprompters and, as far as I know, the first fully-fledged prompter to use the Amiga as its host computer.

You might wonder about the mass appeal of a product like *Smooth Talker*. I mean, how many of you read the news for a living?

Nevertheless, I'm going to tell you about *Smooth Talker* anyway, because I like it. It's easy to use, and it gets the job done. And it's a heck of a sight cheaper than some of the systems on the market, if you've already got the Amiga to run it on.

TELEPROMPTING

What does *Smooth Talker* do? Well, being a teleprompter, it displays text for a presenter to read. The text, controlled by the presenter or a teleprompt controller, rolls up the screen at a readable speed, and is then read out loud. If the presenter is talking directly to camera an arrangement similar to Figure 1 is likely to be used, where a monitor displaying the rolling text is reflected on glass mounted in front of the camera. A primitive arrangement, but it's all that's needed. If someone is speaking to an audience at a conference, for instance, those odd transparent rectangles which so often flank the rostrum will invariably be used. They serve the same purpose as the monitor – to reflect the words so that the speaker can see them easily without continuously referring to written notes. A teleprompter makes the whole affair seem that much slicker.

With *Smooth Talker* you get a software disk and a small black box with a knob and a switch on it. The disk is self-explanatory – it contains the *Smooth Talker* program and associated files, while the black box (which plugs into the parallel port) is a hand-held remote control for the prompting system, with the switch being used to go back and forth between preset cue points and the rotary knob for setting the forward or reverse speed of the text roll.

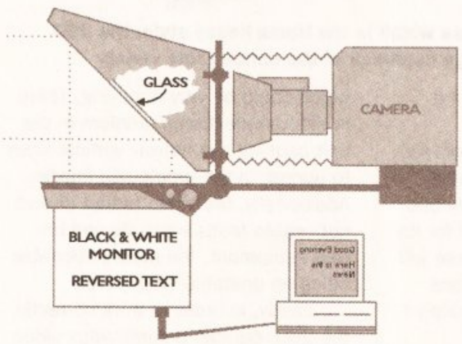


Figure 1

By reading text reflected off a glass screen in front of a camera, a TV presenter can give the impression of great skill and knowledge

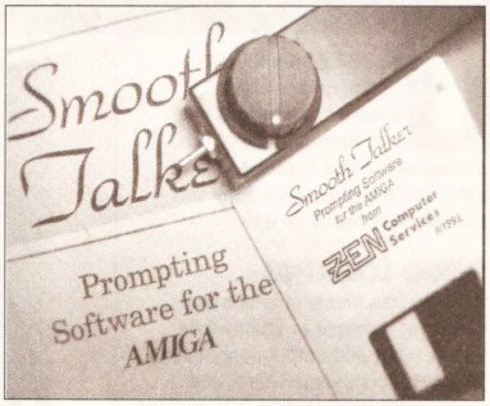
HOW IT WORKS

There are two parts to the software – the main menu screen, where access to all of *Smooth Talker*'s functions is made, and the text display itself.

The program is flexible in that scripts can be prepared within *Smooth Talker*'s main screen, from the prompting screen itself, or ASCII files can be imported and exported for simple modification. Prompting scripts can be saved for later use.

Any available Amiga bitmap font up to 50 point size can be used, though as there are always four or five lines displayed on screen a size between 24 and 45 is advisable. A couple of suitable fonts are provided on the disk and there's an unusual feature that I should explain to you.

Look at Figure 1 again. Then think which way round the text would have to be on the monitor screen for it to appear correctly to the presenter. That's right – it would have to be reversed. This can be achieved by reversing the scan coils of the teleprompting monitor, creating a reversed screen display but *Smooth Talker* uses a novel method so that a normal monitor can be used instead. How? By providing a backwards typeface! All that's then required is to link the monochrome output to a suitable monitor, rig up a glass system and you're in business.



Product shot digitised by GW

FLEXIBILITY

Fonts can be changed at any time, and the text will reformat automatically to take account of this. Screen colours can be either black text on white background or vice versa. There's no need for multicolour here.

Cue points can be marked in the text to save having to scroll back to a certain line if a retake is required. A marker is all that is required is to click the switch on the remote control and the display jumps back or forward to the next marker.

An inverse line facility is included to allow text to be highlighted (such as instructions to the presenter which aren't meant to be read aloud). And, if required, all the text can be toggled to upper case – though this can't be undone.

Changes to the text on display can be made through function key selections and the keyboard and, if you have a serial printer or don't have the remote connected at the time, the results can be output to a printer for hard copy.

Scrolling speed can be smoothly varied by using the rotary control on the remote handset, allowing continuous adjustment to keep pace with the presenters' requirements. Additionally, the handset cable can be extended to 30 metres or more.

Smooth Talker will run on *any* 512K or greater Amiga running AmigaDOS 1.2 or higher. It is self-booting and multitasking. If you are contemplating buying a teleprompter, I'd recommend you contact ZEN Computer Services for more info.

For those who aren't sure, a demo tape is available for £2.00 which shows *Smooth Talker* in use.

E-Mail me on CIX as drgaz.

SHOPPING LIST

Smooth Talker....................... £141
from ZEN Computer Services
2 Silver Birch Grove,
Swinton
Manchester M27 1FS
☎ 061 793 1931

CHECKOUT SMOOTH TALKER

Quality ●●●●○
Fulfils its objectives.

Features ●●●●○
Well thought out, everything you need to generate teleprompting screens.

Documentation ●●●●○
Compact but comprehensive.

Price Value ●●●●○
No competition in the Amiga world.

Hardware ●●●○○
Slightly quirky, but easily usable.

Overall rating ●●●●○

Nice to see ZEN coming up with another innovative and well-produced (if limited appeal) product.

HAMA RAP

Gary Whiteley welcomes you back to Genlock Corner

The 290 genlock, from Hama, is the latest genlock from one of the well-known names in the photographic and domestic/semi-pro video markets. How does this new product measure up?

GOOD LOOKING

The 290 has plenty of knobs and switches, a couple of stubby fader levers, input and output connections for S-VHS, composite video, and Amiga RGB and a built-in RGB splitter for use with digitisers capable of automated operation, such as New Tek's Digi-View Gold. A power supply is included for those situations where the host Amiga (such as some A500s), is unable to supply enough juice to power the genlock, or the unit is being used solo to convert S-VHS to composite or RGB outputs.

UP AND RUNNING

Connection is easy. There's a longish ribbon connector built in to the 290 which connects to the Amiga RGB port. The RGB output can then be taken from the genlock's 23-pin D connector to an RGB monitor. Video connectors are quickly accessed on the upper rear of the unit and consist of phono connectors for composite video and standard Hosiden (Mini-DIN) connectors for S-VHS. The single phono for the digitiser output is also on the top.

Operation is equally straight-forward. Through switches and faders it is possible to cross fade between combinations of Amiga, black, video and key signals. Keying is via the usual Amiga colour zero removal, but it's also possible to reverse the key to produce a 'keyhole' effect – where everything except colour zero is transparent to the video input. The Amiga can be switched out entirely by using the Bypass switch, letting the video input pass through unaffected, and the display on the Amiga can be switched between Amiga only or genlock output signal, which is handy for seeing what you are doing when placing graphics over video images. The only problem I had with the controls was that the fade to black lever had an effective range of only a quarter of its travel, resulting in a very abrupt fade to black.



In the sleek, dark grey case which is the Hama house style, the 290 is around the size of a large hardback of the coffee table variety

There are also some controls for tweaking the video input, allowing some degree of colour, contrast and brightness adjustment, as well for its red, green and blue levels. These will be useful where some corrections need to be made, but unfortunately I thought that the range of RGB variation wasn't quite as wide as it ought to be for full effectiveness.

Overall the output is reasonable, though there is some bleed through of live video into the Amiga image which could be very annoying. There is also an electronic problem in the unit causing two narrow vertical lines to appear in the processed image. Additionally, the video output shows noticeable faults when viewed on test equipment, the most noticeable being an unstable black level.

Lastly, in order to work correctly, the 290 requires a continuous video feed, or no video feed at all. In a situation where a tape has run out of picture but is still playing back, the system will fall over until video is restored or input is disconnected.

WOT, NO DIGITISING?

I tried to use the built-in RGB splitter with my Digi-View, but after some enquiries to Hama I found that the cable required to connect the genlock to the Amiga joystick port for automatic splitting under software control was not yet available. Even though I built a cable myself, I was unable to get the splitter working automatically. Because there is no way of selecting between the R, G or B components I couldn't assess any output other than the default (green). This lack of manual switching is serious and will preclude owners of other monochrome digitisers from using the splitter output.

One final word. I suspected that this product was made by a third party, boxed and badged by or for Hama. My suspicions were aroused when I found the manual for the 290 genlock was almost identical to the manual for the Electronic Design genlocks I reviewed in *AS* 9. I discovered that Hama also sells an Electronic Design genlock under the name Hama 590! Hama confirmed that the units are badged, but couldn't say who makes them. AS

THE BIG 3 PLUSES:

1. The inclusion of user controls for video colour, contrast, brightness and RGB adjustment.
2. Ability to convert S-VHS to RGB and composite outputs.
3. RGB to Amiga connector and Amiga/genlock output switching.

AND THE 7 MINUS POINTS:

1. Phonos for composite video connection. I'd expect BNCs for this price.
2. Hosiden (Mini-DIN) sockets for S-VHS were slightly loose.
3. Video signals were not up to spec, black levels were incorrectly clamped, output was noisy (producing 2 vertical lines) and there was slight bleed through on to the Amiga image from video input.
4. Not enough range on colour correction controls to bring some average colour problems into line.
5. Too short a travel on the Video/Black fader, resulting in unsubtle fading.
6. No manual switching for splitter component output selection.
7. Direct cutting between genlock and video signals was poor.

SHOPPING LIST

Hama 290 Genlock................ £749
in c PSU
by Hama PVAC Ltd, Unit 4
Cherrywood, Chineham
Business Park, Basingstoke,
Hants RG24 0WF
☎ 0256 708110

CHECKOUT
HAMA 290 GENLOCK

Documentation ●●●●○
Good, comprehensive and clear.

Features ●●●●○
Well stocked.

Quality ●●●○○
Output and control problems mar performance.

Price Value ●●●●○
Overpriced, considering its problems.

Overall rating ●●●●○

I would have expected much higher quality for this price tag. True, there are a number of potentially useful features, but an overall improvement is needed to make this unit a worthwhile buy.

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."...its handling of graphics is unsurpassed: Pen Pal is the only program I tested that will automatically wrap text around graphics..." *Amiga World...Jul. '90*

"...Please let me tell you how amazed I am at how EASY IT IS TO USE PEN PAL. The manuals supplied are very informative and very clear..." *P.S.S., Clifton, NOTTINGHAM*

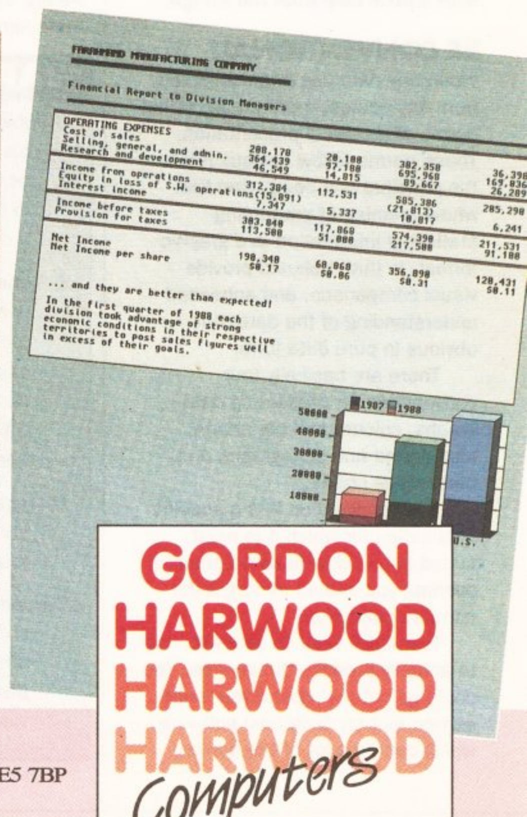
."..without beating around the bush Pen Pal is very special.." - "There is little to fault Pen Pal and it deserves to do well." *Amiga Format...Dec. '90*

"...A most excellent piece of software..." *E.P.H., Strathclyde, SCOTLAND*



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Chart beat

This month Wilf Rees looks at presenting data, graphs and statistics and how Spellbound! can develop your memory, logic and spelling skills

One of the surest ways of getting your point across is to present your ideas or findings in the clearest way possible. The same applies in school projects or in the business world. The more clearly you present your work, the more professional and worthy of acclaim it is. This month I'm focusing on neat ways of displaying statistical information in various graphs, all with a little help from the Amiga.

BE CONVENTIONAL!

When any data has been collected from any source, there are accepted norms of graphical presentation. These norms follow obvious rules, the principal one being, that the whole premise of presenting statistical information in a graphic format, is that it should provide visual comparison, and enhanced understanding of the data, not obvious in pure data form.

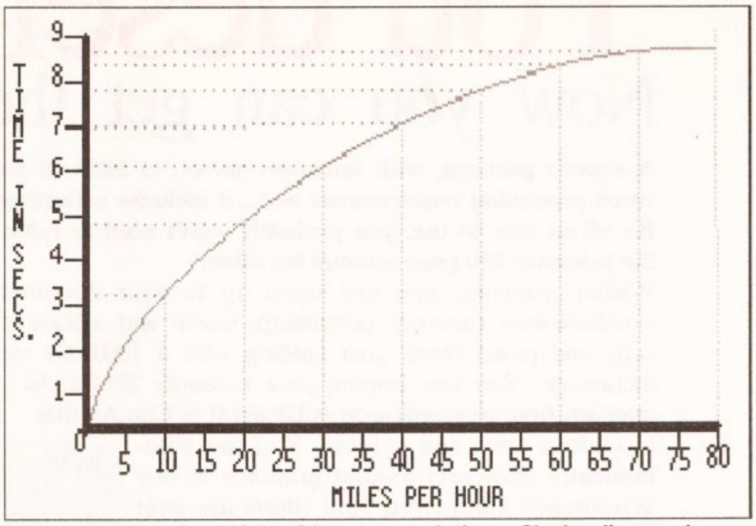
There are basically four conventions for presenting data: graphs, column and bar charts, histograms and pictographs and percentage charts.

Each convention has a specific application for which it is most suited and whilst these sometimes overlap, you should try to get the correct application.

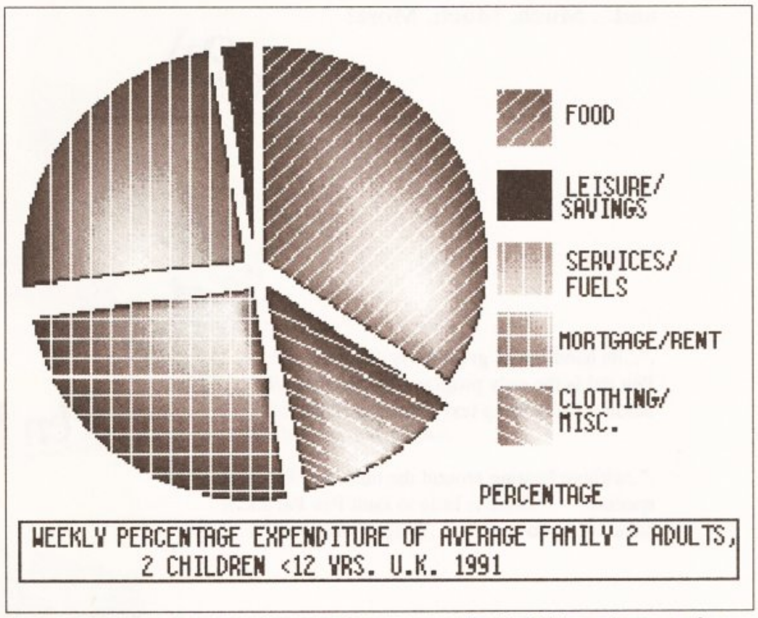
Primarily I want to deal with how to actually produce the images. You could go out and spend your hard earned loot on dedicated software, which can do a lot of the donkey-work for you, but personally, I always use good old *DPaint*, some of the features of which you can adapt to enhance your outcomes.

KISS!

No, I'm not being overtly familiar, but the acronym also stands, for Keep it Simple, Stupid! and that really is the key to all graphical presentation. Above all else the purpose of the exercise is to make it obvious what we are trying to communicate, the more simply the better!



The acceleration of a vehicle with more oomph than a Skoda – line graphs illustrate relationships between speed and time in a clear format



A pie chart showing expenditures of an average family. Did you know a pie chart is so called as it was named after its inventor Professor Helmut Pie?

JARGON BUSTING • JARGON BUSTING

Graphs – A graph is used to demonstrate the relationship between two parameters, where one is dependent on the other. The presentation can be in the form of a series of interconnecting straight lines, or as a curve. In the example I have shown, top right, the curve showing acceleration is a direct function of the inter-relationship of time and speed.

Columns and bar charts – Used to demonstrate comparisons, where the performance of each process or item can be measured against each other. A bar chart is drawn horizontally, a column chart vertically. In both cases the bars or columns should be of equal thickness and spaced equally apart. Each item should be labelled, with words or an illustration. Often column charts are drawn as 3-dimensional columns to give enhanced visual appeal.

Histograms and pictograms – A histogram is used where both axes vary numerically. The columns are stacked against each other and plot out a rough curve along the top.

Percentage charts – Produced in two formats, as a bar chart, or as a pie chart. In both cases, an area is filled with a colour or pattern which reflects the ratios of each item. In the above example, I have presented the data as a pie chart with simple patterns to give the chart more visual appeal.

GROUND RULES

When you start thinking about how you might present your information, there are a few simple ground rules to help you achieve optimum results. Try looking at your finished results to see if they conform to some simple guidelines...

1 Ensure you give your image a title saying exactly what it shows.
2 When deciding on the axes of the image, determine their ratios within

FUNNY FORMAT

I was sent two disks with the following information on: "ADI Maths samples Maths screen shots, box top etc. Europress Software." Sorry, but the discs were unreadable. If they are yours, please contact us here at *Amiga Shopper.*

sensible parameters to reflect what it is you are showing.
3 Always label the axes clearly, indicating scale.
4 Always provide a 'Key' to describe the different elements.
5 Select the most appropriate form of presentation for your data.
6 Make the data clear and readable

If the answer is affirmative to these criteria, then your data should be presented correctly, and in a easily interpreted fashion.

MAKE THE SOFTWARE DO THE WORK!

Let's start looking in detail at how we can use the features of *DPaint* to make the preparation and recording of your information quicker. There are several of the tools which facilitate short-cuts, and none more useful than the 'Grid' tool. Clicking on the icon with the right mouse button gives us a requester, which asks for information on the 'X' and 'Y' axes. This is a facility which you may not have used before much, but now it comes into its own. The default settings are both at '8'. Changing these will cause the screen pixel to default to a determined location at regular intervals, ideal for spacing your axis calibrations!

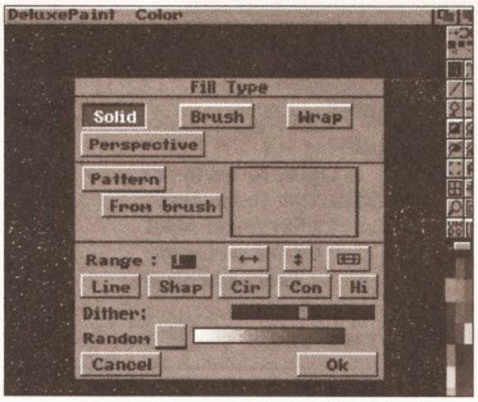
An additional item on the requester is labelled 'Adjust'. Try clicking on this, then returning to the screen. You will see that by holding down the left mouse button, you can drag a grid across the screen to whatever format you require. The 'Line' tool also has an important role. Obviously you use it to set up the axes, but similar to the Grid tool, if you point at the tool and press the right hand mouse button a requester comes up to ask about spacing. Using this facility enables you to generate dotted lines of infinite variety. These are so useful for indicating major calibration points on your axes, and leading the lines vertically and horizontally to meet at strategic points you might want to emphasise.

The rectangle and circle tools are going to be useful in the construction of boxes to demonstrate 'bars' and 'pie' charts. It is important though that you ensure all columns or bars are the same width, and equally spaced. The obvious way to do this is to use the brush.

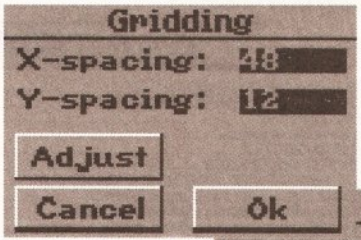
GOOD OLD BRUSH

Probably, the brush tool will come in for more use than any other. Get into the habit of using it for more than just duplicating images and reducing or enlarging them. It makes a brilliant rubber by holding down the right mouse button. You can grab any nonsense on the screen and use it as a rubber , but try grabbing a shape similar to the one you want to erase. Double clicking on the 'Brush' icon gives the option of selecting a polygon based brush. This is even better, in that you can draw around an area with a mistake, superimpose the brush on the original, right hand mouse button, and it's gone! Alternatively, move it to the spare screen (pressing 'J' on the keyboard) carry out repairs, then redraw and bring it back to replace the original.

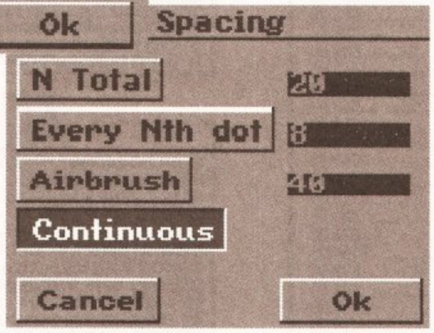
When making pictographs, the brush is ideal. Draw your image, grab it, then duplicate it by placing the brush image alongside. Another tip here, don't try to keep aligning further brush images, just redraw the two images as a brush and double the number of images each time! It really does save a lot of frustration and repetitive tasks.



The fill requester is one of the keys to making your graphs look professional – *DPaint 4* gives a range of possibilities



The Gridding tool enables you to highlight the X and Y co-ordinates of your graph and change them to suit the particular calibration you require for your grid



***DPaint*'s Line tool is useful for indicating calibration points along the length of your graph to highlight points of interest**

GOING FOR BUST

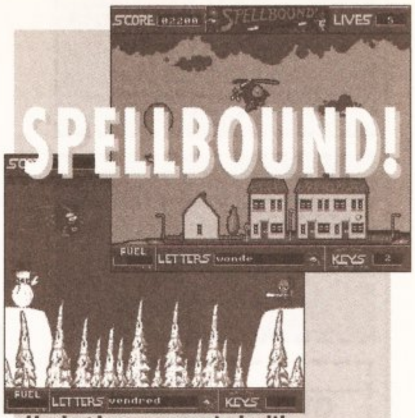
Finally adding the little touches which make an ordinary graph into something a little more professional. Obviously if your graph is going to be printed you are limited to your printer's facilities. OK, it's nice if you can print them out in colour, but it's not essential, after all, we don't use colour at *Amiga Shopper*, but it's still the first mag everyone looks for each month! You can generate patterns to use as fills, or, use gridded lines as I have on the pie chart. Remember when all your friends swagger on about their colour-kits or ink-jets, the best photographs, and those taken by the pros, are still black and white. If you do have colour printing facilities, don't gild the lily by overdoing the assortment of colours. Stay within a range of tones if the subject matter is related.

I have purposely made my examples as simple as possible, because their intention was to convey the different types. You can however spend more time, for example on the text, using shadowed fonts. Alternatively you could use the perspective facility to make 3D column charts. Electronic Arts has added some interesting additions to *DPaint* 4 in the fill facilities, and several of the icons allow fill possibilities, again by pointing and clicking with the right mouse button. These can add a variety of patterns and textures to what would be ordinary blank spaces. (See example of fills on the pie chart).

You could of course just use your graphs as part of a visual presentation, intended to be shown on a monitor, in which case, the June issue of *Amiga Shopper* contains a presentation routine in the Education column. Combining your written information and supporting graphical statistics in a self-contained presentation format will give your work professionalism, and score top marks! AS

GIVE US YOUR BEST SHOT

Don't be shy about sending in your work. We're looking for good examples of work on the Amiga to use in this column. If you are developing your studies and are pleased with the result, then share it with us. Remember there are some nice goodies waiting as rewards, and one of them could have your name on it! Mark for Wilf Rees' attention at the *Amiga Shopper* address.



Having been presented with a word, off we go through each level shooting up the assorted nasties to collect the letters

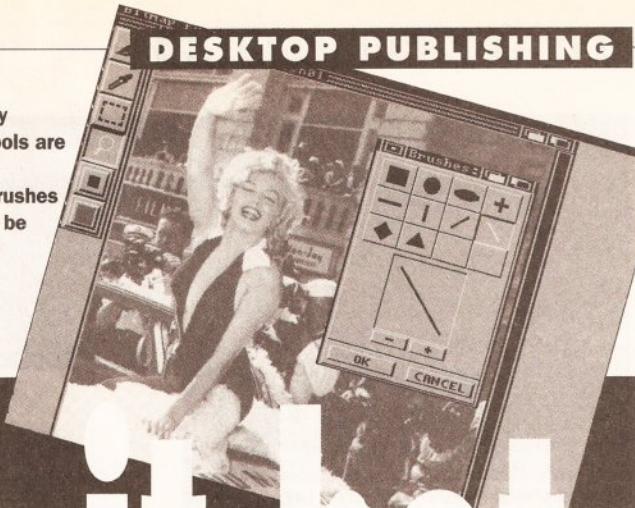
A very appropriate title! I must confess I was somewhat spellbound by this program. *Spellbound!* is a superb piece of software, which is frustrating, entertaining, compulsive and educational. Morgana's wand has been locked in a dungeon by the mad Professor Grime, and the task is to collect the five keys which open the dungeon door. Travelling by assorted airborne and seaborne vehicles, you must shoot all manner of nasty creatures and obstacles. All very familiar, but the difference is, that each object once shot, releases a letter. The letters must be collected in the correct order to spell a previously requested word. Now as you know most software has hidden cheat codes, and for us reviewers it saves hours of strife to be able to move quickly to different levels to see the program. This is one of the few where I have ignored cheating! A great feature is the ability to change all of the parameters of the game, including extending or altering the words which could even be foreign language spellings, increasing the number of lives, having the walls safe or fatal etc. In other words, a parent, teacher. or yourself, could tailor the difficulty to match ability.

The levels take you through an assortment of environments, starting with a dungeon, then moving on to an undersea scene, a Manhattan sky-line, the Alaskan wastes, and finally a wild space scene. A high score table and zany sound effects all contribute towards the overall enjoyment of this product, which is supported by a well written and informative manual.

Spellbound! has succeeded in combining the excitement of an arcade game with an addictive, enjoyable education product. It deserves a place in every school.

***Spellbound!* is available from Lander Software, 74 Victoria Crescent Road, Glasgow G12 9JN ☎ 041 357 1659, and costs £25.99**

Jeff Walker takes a look at HotLinks, the new data exchange system for PageStream and reviews Shades, the latest gradient fill package



BME's only drawing tools are 10 simple painting brushes which can be any colour in the picture's palette

Some like it hot

Two of the criticisms I've made of Soft-Logik's *PageStream* desktop publishing program are that it is difficult to use the Picture Window feature to crop bitmap graphics accurately, and that it is impossible to prepare text beforehand in a word processor using typesetting or style commands so that you don't have to do it the slow way within *PageStream* itself.

I was criticised myself for making these remarks, by *PageStream* owners mainly who told me that they didn't require these features and that I was giving these shortcomings too much importance. I mention this piece of history because Soft-Logik's latest releases happen to be *BME*, a bitmap editor for cropping and retouching graphics, and *PageLiner*, a text editor that supports *PageStream* style tags.

These two applications, plus the version 2.2 release of *PageStream*, are the first three programs to employ Soft-Logik's new *HotLinks* inter-program communication system, and before we get on to looking at *BME* and *PageLiner* themselves we need to learn all about *HotLinks*.

SIMPLE CONCEPT

The *HotLinks* concept is simple to understand. In desktop publishing there are several distinct jobs, like writing the copy, creating the artwork, and laying out or 'making up' the pages, to give just three examples. A single program that was an expert at every job would be massive, and probably very difficult to learn how to use, so the answer is to use a word processor for writing the copy, art programs for messing about with the artwork, and a desktop publisher for making up the pages.

Now the beauty of the Amiga is that with enough memory you are able to have more than one application running at the same time, so you don't have to keep quitting from one program in order to load and use another. But wouldn't it be great if instead of having to save data to disk and then import it into one of the other applications you could send the text from the word processor and the artwork from the art program directly to the desktop publishing program and vice versa? That is what *HotLinks* is all about.

THE INVISIBLE PROGRAM

Experienced Amiga users will be screaming "What about ARexx?" at this point, but bear with me and I think you'll see why Soft-Logik has decided to re-invent a wheel.

HotLinks is one of those 'invisible' Amiga programs; when you double click its icon nothing appears to happen. But it has. After running *HotLinks* any program that supports the system will make its *HotLinks* features available.

There are four features – Subscribe, Publish, Update and Information. The first job will be to 'publish' something. From *PageLiner* you would publish text, from *BME* it would be a graphic, from *PageStream* it could be either. Once some data has been published, another program that supports *HotLinks* can 'subscribe' to it. *PageLiner* can subscribe only to text, *BME* only to graphics, *PageStream* to either.

In effect, publishing and subscribing is almost exactly the same as saving and loading data. The difference is that you don't supply a filename. You have to give it a name, of course, otherwise you'd never remember what on earth it was you'd published, and this name can be anything you like, but it isn't an actual *file* name, it's more like the filenotes you can create with the AmigaDOS Filenote command. Typically you'd call some data a name like 'Figure 2 graphic for Chapter 1' or 'Body text for Chapter 2'.

Along with this name you can jot down some information about the data in a small notes area, and this is what the *HotLinks* Information facility presents you with when it is selected – it's an 'About' requester about a data file, written by yourself.

The data itself is saved to disk using a *HotLinks*-specific file format and file naming system that you don't need to worry about.

Once something is published it is known as an 'edition'. I hope you're remembering these *HotLinks* terms because you may become confused while reading the rest of this article otherwise. To recap: 'publishing' is like saving the data, 'subscribing' is like loading it, and the things (files, if you like) you publish and subscribe to are called 'editions'.

REVISING EDITIONS

So far there's not much advantage to using *HotLinks* over the normal 'save and load' way of working. Which is where the Update feature comes in. If you subscribe to an edition and then change it in some way – alter the wording of some text for example – then you need to record those changes. Now, you *could* publish it again and then subscribe to the new version, but that's no better than 'save and load'. Instead you 'update' the edition.

Updating an edition means that any application which supports *HotLinks* and uses that edition will automatically change to reflect the alterations the next time it is used.

So to give a simple practical example. You've laid out the same leaflet three times in three different languages. Suddenly somebody

JARGON BUSTING • JARGON BUSTING

Bitmap graphics – See IFF ILBM.

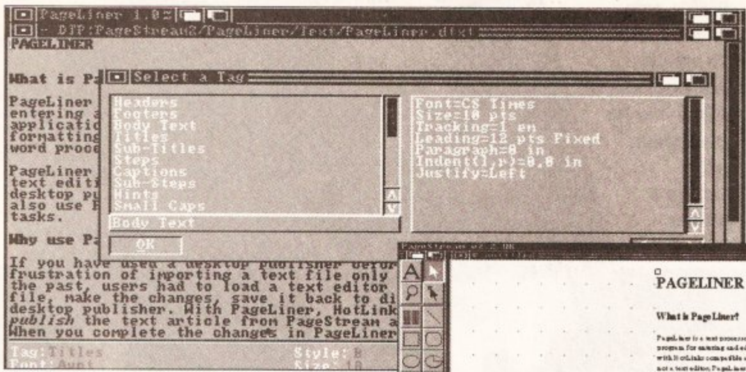
Copy – A term used by writers and publishers for the words that form a complete piece of writing.

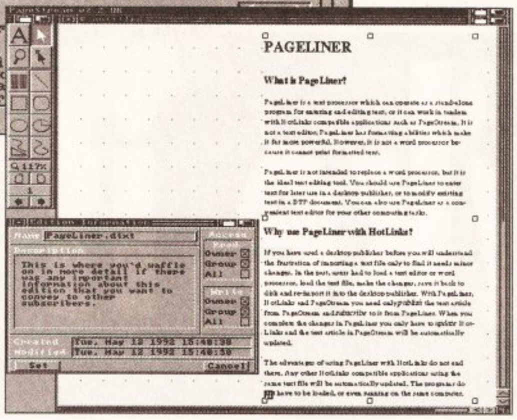
GIF – A bitmap graphics file format that can contain up to 256 colours or greyscales.

IFF – Stands for Interchange File Format. Many people call Amiga graphics IFFs when they really mean IFF ILBM – the ILBM stands for InterLeaved BitMap. IFF is the general file format, ILBM is the 'type' of IFF that is a graphic.

Retouching – The act of repairing or cleaning up a damaged or dirty part of a graphic.

TIFF – A bitmap graphics file format that can contain up to 256 colours or greyscales.





After applying *PageStream* style tags to a section of text and 'publishing' it in *PageLiner*, the copy automatically formats itself when subscribed to by *PageStream*

points out that there is a glitch in one of the bitmap graphics on the page. So you load the graphic into *Deluxe Paint* (or whatever), clean it up, save it, load *PageStream*, load a leaflet, delete the old version of the graphic, import and position the new one and save the leaflet; then you load the second leaflet and do the same; then you load the third leaflet and do it again.

That took a little while. Probably an hour or more.

GRAPHICS CLEAN-UP

Now the same thing using *HotLinks*. You load the *BME* program, subscribe to the offending graphic edition, use *BME*'s art editing tools to clean up the graphic, then Update the edition.

That's it. Took maybe 10 minutes. Next time you load any of the three leaflets that use this graphic (or subscribe to this edition, to use the *HotLinks* parlance) the altered version is what gets used.

I've used a graphic as an example, but it's the same for text. Can you see the advantage of the *HotLinks* system now?

The absolute beauty is that it is so simple – publish, subscribe, update, that's all you have to remember, and it's all done for you. The standard Amiga inter-program communication system is ARexx, and to achieve the same thing using programs that supported ARexx would require you (or someone else) to write ARexx programs for each of the separate applications involved.

There is one more string to the *HotLinks* bow, real-time data transfer. If you have two *HotLinks* compatible programs running, the Update command will not only update the edition file on disk, but also any copies of that edition in any application that has a copy of that edition loaded.

EASY STYLES

Having discussed the theory of *HotLinks*, it's time to see how it works using *BME* and *PageLiner*.

PageLiner is not a 'word processor' because it cannot print out text styles, only unstyled drafts. And it's not a 'text editor' because style and formatting commands can be incorporated within the text. So Soft-Logik has split the difference and called *PageLiner* a 'text processor'.

It contains all the expected facilities of a simple text editor, like block cut/paste/copy, wordwrap, find and replace, plus it comes with a spelling checker and small dictionary to which you can add new words. For bashing out or editing words, *PageLiner* is an entirely adequate tool.

The program's real power is that it understands *PageStream*'s style tagging system, and will let you apply style tags to blocks of text so that they automatically format themselves when imported into *PageStream* (V2.2 and greater).

Style tags are deeply wonderful things. You've all used word processing style features like bold and italics, now imagine extending that facility to include the font, point size, line spacing, tracking, paragraph indent... and a whole host of other things. For instance you could set up a style tag called 'Body Copy' and give it all the style attributes that you want your body copy to have, and set up another style tag called 'Subhead' and give it all the style attributes you want your sub-headings to have, and set up another style tag called 'Captions' and give it all the style attributes you want your picture captions to have... And you can keep on going until every piece of text in your document that has a different style has its own style tag.

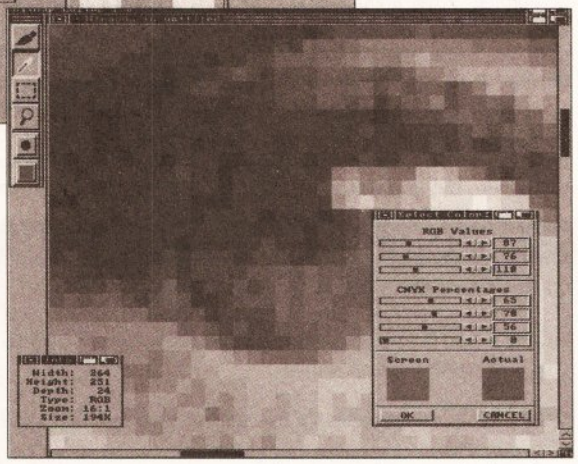
When preparing the text you would highlight sections of the text that you want in particular styles, and apply the relevant style tag. On screen the text doesn't change, except that bold, underline and italics are displayed, but along the bottom of the display is an information line that tells you which style tag has been applied to the piece of text at the current cursor position.

After a bit of practice with style tags you should be able to do all the hard work in the quicker *PageLiner* program, rather than having to highlight blocks in the much slower *PageStream* program and select styles or apply tags. This way of doing things is a great aid to productivity – you'll be able to get more done in less time.

The style tags themselves must be set up within *PageStream*, using its Text/Tag requester. You'd set up and 'Add' each style you require, then store the entire list of tags to disk using the 'Save' button. This is the file that *PageLiner* can import, and it can import any number of 'tags' files, appending any new style tags to the list, ignoring any duplicate style tag names.

(Ah yes, now might be an appropriate time to mention that if you attempt to save a tags file from *PageStream* without giving it a filename, *PageStream 2.2* hangs.)





Although *BME* displays pictures in only 16 levels of grey, it retains all the original colour information and allows you to 'edit' the picture using the full palette in up to 32:1 magnification

SPECTACULAR CRASHES

Alas, this first version of *PageLiner* is not entirely stable. Or perhaps it is *HotLinks*, I don't know, but following through the tutorial on a WB1.3 Amiga 2000, and then on a WB2.04 Amiga 3000, both machines crashed at the same stage over and over again. I have managed to get the publish, subscribe and update system to work, but at different stages either *PageStream* or *PageLiner* eventually always crashes spectacularly. And while I'm confident that Soft-Logik will fix this problem, I'm disappointed that *HotLinks* has been released while it contains such a serious bug; I can't imagine how it wasn't spotted by the beta-testers.

When the developers have got it working properly, however, I can see that *PageLiner* will be an enormous help to *PageStream* users. But if you buy it now, for heaven's sake send back the registration card to Soft-Logik so that you can follow the upgrade path.

BETTER BME

The *HotLinks* bitmap editor, *BME*, appears to be a lot more stable than *PageLiner*. What I mean to say is that it has not yet crashed on me, and neither has *PageStream* when subscribing to, publishing and updating graphics.

Now unless I'm missing something very obvious, there are only two uses for *BME*. The most obvious, to me at least, is for cropping. You see, the problem is that while *PageStream* can import bitmaps that contain up to 16.7 million colours, it will only display them in black and white. Sometimes you can see enough of the picture to be able to crop it fairly accurately, although most of the time there's not enough detail.

OK, so if it's an IFF ILBM you could load the bitmap into *Deluxe Paint*, crop it and save it again. But what about the 16.7 million colour




***BME* makes picture cropping for *PageStream* a more accurate affair. First you import the picture into *PageStream* (left), then Publish it and Subscribe to it in *BME* where you can drag out an area to be cropped (middle), the Update in BME and quit, and finally Update in *PageStream* (right)**

24-bit ILBMs? And what about the 256-colour bitmap formats *PageStream* supports, like TIFF and GIF? Without a 24-bit graphics card and art software (or *Art Department Professional* and the relevant file format modules) you're stuck with trying to crop the black and white representation that *PageStream* provides.

Unless you've got *BME*.

The process goes like this: import the bitmap into *PageStream*, publish it, subscribe to it in *BME*, crop it, and then update it.

BME creates an on-screen 16 levels of grey representation of the bitmap, which is plenty good enough to see most of the details in even 16.7 million colour pictures, making them easy to crop.

BME itself supports only two bitmap file formats, IFF ILBM (but not HAM) and GIF. These can be loaded straight into *BME* (rather than subscribed to) and subsequently published if you like, but if you want to work on HAM, TIFF, or 24-bit ILBM bitmaps you have to import them into *PageStream* first, publish them, and then subscribe to them in *BME*.

UNDOING DAMAGE

It's important to realise that *BME* doesn't convert the bitmap to 16 levels of grey, it retains all the original colour information, the 16 greyscales are just for display purposes.

Another use for *BME* is for cleaning up or 'retouching' a graphic. For instance you might have scanned an original photograph that was damaged in some way, and with *PageStream* and *BME* you could publish and subscribe to it and then zoom in on the damaged part and paint over the damaged pixels with one of *BME*'s 10 types of brush. Because *BME* retains all the original colour information, you are able to choose which colours to paint with from the full 16.7 million colour palette. In the palette requester the program provides a rough on-screen colour approximation, plus the actual RGB and CMYK values, although what gets displayed on screen is one of the 16 shades of grey.

It can be a bit of a hit and miss operation, but it's an awful lot cheaper (and faster) than 24-bit hardware and software.

As well as cropping and painting with brushes, *BME* will enable you to cut or copy rectangular sections from a picture and paste them down elsewhere on the same picture, or into another one. You can even create an empty window and then copy bits from various other bitmaps into the empty one so you can make collages.



***BME* allows as many pictures to be loaded as memory permits, after which you can copy bits from one picture into another if you like, or create a 'new' window into which parts of lots of pictures can be pasted, for instance, to create a collage.**

In the same way that *PageLiner* is no replacement for a proper, fully-featured word processor, *BME* is no replacement for a dedicated art package. It mustn't be thought of as an art package, more as a simple cropping and retouching extension to *PageStream*. As such, it does the job admirably.

NETWORK SUPPORT

In the near future (says Soft-Logik) there will be a version of *HotLinks* that supports networks.

Put simply, a network would consist of a number of people, all at different Amiga workstations – in different offices in an office block for instance – all connected to one massive storage device, probably a hard drive with capacity measured in gigabytes (1,000 megabytes or more).

While each workstation would run its own personal copy of *HotLinks* and applications software, they would all save and load their data from the communal hard drive.

You can probably see the advantages of the *HotLinks* publishing, subscribing and updating system here – one person updates a text or graphic edition, and everyone else on the system automatically gets updated next time they access that edition.

Obviously such a set-up would need a security system because the person in charge would want to restrict access of certain editions only to those people who need access to them, otherwise any Andy, Cliff or Diana could muck about with the data and deface or destroy important work. And although *HotLinks* doesn't yet support networking, the security system has been written and is included with the V1.0 release.

SYSTEM MANAGEMENT

It all revolves around the 'system manager'. This person has his or her own personal 'handle' (name) and password that gets his or her into HUMP, the HotLinks User Management Program. From here he or she can add new users to the network, and combine them into groups if need be; each user can have a password, initially provided by the system manager but which can be changed later by individuals, or there can be just one password for the entire group.

With the network set up, and when the networking version of *HotLinks* is released, editions can be published with 'read/write' flags set so that only certain individuals, or groups of individuals, have access to them. You could ensure that nobody made any further changes to your edition by setting the Read Access to All, but the Write Access to Just Owner, provided you are the owner of the edition, of course.

This security system isn't useful just in a networking situation, it might come in handy if you have only one workstation used by many people. If you don't want others messing with your editions you could use the security password system and restrict access to only yourself or those who need access.

But while this networking system is a good idea, one that is used widely out there in the professional world, I'm not convinced that *PageStream* is a professional enough product to warrant the development of *HotLinks* in this direction. I can't see many home users setting up Amiga publishing networks, and in the seriously real world publishers use Macintosh computers and *Quark Xpress* software, period.

"HotLinks improves PageStream's chances of being used professionally."

I hate complaining about *PageStream* in public because people always accuse me of being biased against it, but if you'll allow me one quick demonstration of why *PageStream* could not be used to publish, for example, this magazine... I have 7Mb of memory in my Amiga 2000. I asked *PageStream* to import a 24-bit IFF picture whose file size was 2.5Mb. It imported OK as an Object, but when I tried to put that object on to the page I was told I was Out Of Memory. When I tried it again with a slightly smaller 24-bit picture, *PageStream* crashed unceremoniously.

Now that's one, single, lonely, individual, sole, solitary 24-bit IFF picture. "You obviously need more memory!" I hear you scream. Well, if that's the case how come that with the same computer I recently used a rival DTP package to produce a full colour A4 leaflet that contained no less than six 24-bit colour pictures whose accumulative file size was about 16Mb, plus a 1.5Mb 8-bit greyscale picture, all viewable on-screen (albeit in four greyscales), plus a load of text?

CONCLUDING THOUGHTS

The point I'm trying to make is that perhaps Soft-Logik would be better advised to concentrate on improving *PageStream*'s performance so that it can be used truly professionally before developing a product that is of use only to professional publishers?

Having said that, I must say that *HotLinks* certainly improves *PageStream*'s chances of being used professionally, at least when they've got *PageLiner* working properly it will.

But at the end of the day I'm left wondering what use the home desktop publisher will have for *HotLinks*. Home users will on the whole be using ordinary IFF or structured graphics, and there are better packages for working with both these formats. And if you really need to view and crop 24-bit or alien format bitmaps I suggest that, even though it costs a lot more and you need a lot of memory to use it, *Art Department Professional* is a much better investment.

PageLiner, if the publishing and subscribing system worked properly, would be a good reason to buy *HotLinks* because of the time it would save applying styles to different blocks of text throughout a long document. In fact I'd go so far as to say that this feature alone may be worth the cost of the whole package. But at the moment it doesn't work. AS

SHOPPING LIST

HotLinks £69.95
by Soft Logik Publishing Corporation
11131F South Towne Square, St Louis, MO, 63123 USA
☎ 0101 800 829 8608

Distributed in UK by:
HB Marketing, Unit 3, Poyle 14, Newlands Drive
Colnbrook SL3 0DX
☎ 0753 686000

CHECKOUT HOTLINKS

Ease of Use ●●●●○
There's very little to remember, and the *BME* and *PageLiner* programs do not have many features, so the system is not difficult to master.

Features ●●○○○
When you write a list of what *PageLiner* and *BME* can actually do, it's surprising how short it is.

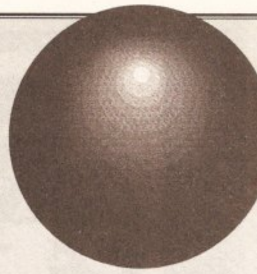
Documentation ●●●●○
The three manuals are excellent, and each provides easy-to-follow tutorials.

Price Value ●●○○○
BME is underpowered, *PageLiner* doesn't work properly, *HotLinks* itself only works with these two programs and *PageStream 2.2*.

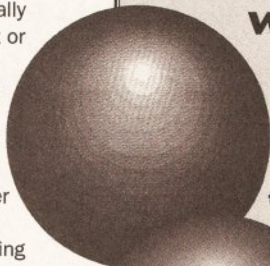
Overall rating ●●○○○

In theory it's a good idea, in practice it sucks. Another curate's egg from Soft Logik.

NOT SO COOL IN THE SHADE



Check out Shades – a new product which supplies gradient fills for PageStream users





One feature that *PageStream* and *ProPage* ignore is gradient fills, or fade textures. Fade textures blend an area from solid black to white in as smooth a gradient as possible. *DPaint* has this feature, but the standard Amiga can display only 16 shades of grey, so the difference between each is easily seen.

Proper fade textures go from black to white in 256 steps, but this takes at least 8-bit colour to get 256 shades of grey. Expensive, memory munching and time consuming. Without many-bit colour the only other way to get smoother gradients is to use a structured drawing package that allows you to specify fill colours as percentages of red, green and blue, so achieving a fade from black to white in 100 steps or 200 steps by using half per cent jumps.This also involves the drawing of 100 or 200 shapes into which to put the fill colours, and accurate positioning. Not expensive, not as memory munching, but even more time consuming.

Enter *Shades*, a diskful of ready-to-use 100-step gradient fills.

NOT FOR PROPAGE

The first thing to note is that *Shades*' gradient fills are for *PageStream 2.1* and greater, so *ProPage* users can stop reading here.

There are 27 shapes and styles, including circles, squares, rounded squares, triangles, polygons, stars, shooting stars, spheres and diagonals. Using them couldn't be simpler as they are saved as *PageStream* documents; all you do is Append the *Shades* file of your choice to the document you are working on and then cut-and-paste the clip to where you want it.

Many hours have been spent creating *Shades*, and Source Graphics deserves credit for a job well done. However I wouldn't be doing *my* job if I didn't point out a few things that the promotional blurb and manual fail to make clear.

Dot-matrix printers – even high resolution ones like 300 dpi inkjets, laser printers and 360 dpi bubble jets – are unable to produce 100 grey shades. Because of the way dithering works, they can only produce patterns representing 16 levels of grey. So when you output a *Shades* gradient fill to a dot-matrix printer, what you get on the page looks very much like a greyscale gradient fill produced in *DPaint* – you can see each band of grey quite clearly, so the illusion of a smooth gradient goes straight out the window.

To get printouts which contain smooth gradients you need to output to a PostScript device, or to non-PostScript printer via a PostScript interpreter.

This is because PostScript uses 'halftoning', which is nothing like and nothing to do with, the Halftone dither option in Workbench Printer preferences. I explained about halftoning in the *SaxonScript Professional* review last month, so if you need more details I recommend you dig that out. This dithering problem doesn't mean that *Shades* is only useful to rich kids, the non-PostScript output is basically the same as a *DPaint* bitmap gradient but without jaggies, so there is one advantage for us poor kids too.

***Shades* is by Source Graphics, costs £59.95 and is available in the UK from Meridian Software, 150 Lubblesthorpe Road, Narborough Road South, Leicester LE3 2XF. ☎ 0533 896743/827102.**

The difference between bubble jet – 360 dpi (top right), laserjet – 300 dpi (above left), and PostScript laser printer output – 360 dpi (bottom left)

CHECKOUT SHADES

Ease of Use ●●●●●
Easy; simply Append, Cut and Paste.

Documentation ●●○○○
Manual is skimpy, out of date, with grammatical errors and spelling mistakes.

Price Value ●●○○○
Lot of money for 27 clips; £2 plus each.

Overall rating ●●○○○

Good idea, but a PostScript device is needed to get the best from them.

Life on the modem waves

This month our comms expert Phil Harris begins a look at how to build your own BBS

Setting up a BBS is not a simple task. It takes quite a while and there are a lot of decisions to be taken. *Amiga Shopper* is here to help, so we've come up with a guide to setting up your own BBS.

We start off with what equipment you will need, how much it will cost and how to plan your board. Next month we'll take a look at the software that is available and examine how easy it is to use and which features are provided. Finally we'll finish off with a look at some of the BBS utilities available and a look round an example board where the theory has been put into practice.

SETTING UP

As we examine the set-up process we'll be looking at the general features boards contain, which will be of interest to you even if you are not planning on setting up your own board.

JARGON BUSTING • JARGON BUSTING

BBS – A bulletin board system. A BBS is simply an electronic noticeboard. Callers to the system leave messages for other users to see, or can download and upload files for other people.

Download – To transfer a file from a BBS to your own computer. Boards will usually limit the amount of time you have to spend downloading files, although many boards reward uploads with longer download times.

Upload – To transfer a file from your computer to a BBS.

Modem – A MODulator DEModulator. A modem is used to translate signals from your computer to and from audible signals that can be transmitted down a telephone line.

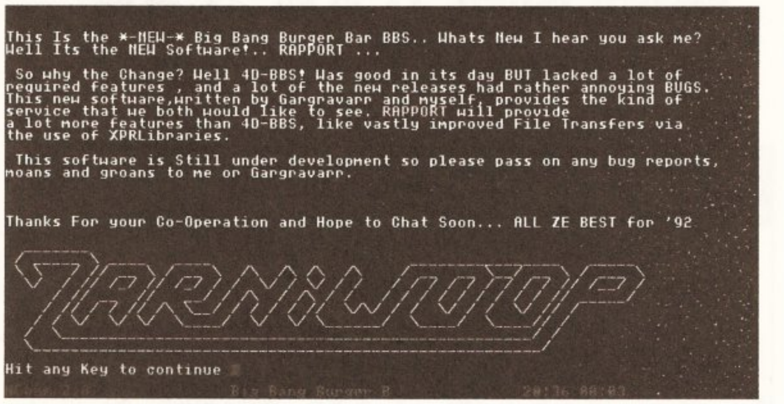
Terminal – A software package which enables you to communicate with a modem.

Having spent a few months wandering round the bulletin boards, many users get the urge to set up their own BBS. One of the reasons for this is money.

Although setting up a board can cost a not inconsiderable amount of money, it does mean that files, messages and users come to you, saving you an awful lot of phone calls.

SAVING MONEY

One of the main reasons for wanting to set up a BBS is to save money, so the chances are that you will use your modem less. But if you want your board to become successful you will need to put effort into keeping it up to date, in particular by obtaining the latest and greatest files, so you will still need to use your modem.



Weird names abound at the Big Bang Burger Bar, an excellent BBS with the custom software *Rapport*

THE EQUIPMENT

The first thing you need to decide before setting up a bulletin board system is what equipment you need, and more importantly, what you can afford.

Obviously you will need a computer, a modem and a telephone line. If you're reading this the chances are you'll already have a computer, and it will be an Amiga so we'll assume that from now on.

BAUD FOR THE BOARD

You may already have a modem as well. If not, the minimum speed you need is really 2400 baud, with support for 300 and 1200 as well. You could go for a faster 9600 baud modem complete with data compression and the works, but it is better to stick with a slower and cheaper modem to begin with.

You may well decide that you don't like running your own BBS after all and decide to pack it in, so the cheaper the modem the better when you're just starting out. You can usually reckon on the modem costing £50-£100. Whatever modem you have it must have an "auto-answer" facility to enable it to function with the BBS software. Most new modems have this; get a Hayes compatible model and you'll be OK.

If you do already have a modem you will need to decide whether you still wish to use it for your own comms work, and if so how often you will use it. If you only have one modem the BBS will have to be taken off-line while you dial your favourite board and this will lead to frustration as your callers find your board continually down.

If you do want to keep using the modem and not disturb the board too often you will need a second modem, and a computer to use it with, which, unless you are lucky enough to already have one spare, will be expensive.

We'll assume you will be cutting down on your comms use and using it in the quiet moments for now though.

THE TELEPHONE LINE

The third requirement for a BBS is a telephone line. There are two options: use an existing line or get a new one installed.

Using an existing line is obviously the cheapest and most preferable option. There are major disadvantages though. Obviously having a modem stuck on the end of the line all the time means that "normal" voice calls cannot be received without the caller being greeted with a high pitched whistle every time they call.

There are ways around this. Limiting access to the board is the most obvious or you could try only allowing calls between certain times, when other callers won't be phoning. Late night is usually the best time for this, say between 9pm and 9am.

The disadvantage with this is that you could lose callers who don't ordinarily have access to their modem at the time you are open. A night time board, for instance, would miss out on callers who use their modems from the office during the day.

Inevitably people will forget that the board is not on-line during the

day and try to phone anyway. They'll be shocked when you answer the phone and you'll get an earful of modem.

RINGBACK RIGMAROLE

There is another way of combining voice and modem calls on one line, using "ring back" software. Ring back software waits for the telephone to ring and counts the number of times it does so. If the phone continues ringing beyond a set number of rings (usually three or four) the software ignores the call, allowing you to answer it.

If the phone stops ringing before the limit is reached the software puts the modem into auto-answer mode and if another call comes in within the next minute or so it will be answered by the modem.

That way voice callers can still get through, but modem users who follow the correct procedure (ie dial, wait for one or two rings, hang up, then dial again) get through to the BBS.

As with the limited access method, people will forget and you will answer the phone to a modem occasionally but the board will be available for longer periods giving you more callers.

GETTING A NEW LINE

Obtaining a new line is the most satisfactory option, but also the most expensive. A new line from BT will cost you approximately £150, not the sort of thing to be taken lightly, and if there is any chance of you not wanting to run the BBS, you are better off using an existing line until you are certain you like the idea.

A new line is by far the best option though; it gives full access to the board with the least hassle and you can still use the other line for your own calls. Even if you are sure that you will want a new line, it is best to leave it as late as possible, just in case.

DRIVE DECISIONS

The one thing that BBSs are always short of is space. No matter how much storage space you have, you'll always need more, particularly if you want to make lots of files available. You've got three options on the Amiga.

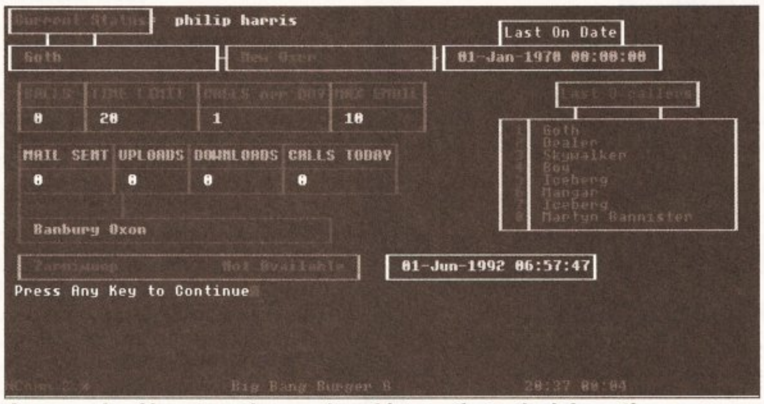
FLOPPY DRAWBACKS

It is possible to run a BBS from a single floppy drive but I wouldn't recommend it. By the time you've put the BBS software on the disk, plus the message base and any support files required, there will be no room for any files.

Adding a couple of external disk drives (£50-£100 each) would give you an extra couple of megabytes of space for files. In an ideal world, though, that's still not really enough.

Of course, you don't have to have files. It is possible to run a message-only BBS, particularly if you have some form of expertise which you can offer callers. However, floppies are pretty slow and callers will soon get frustrated with the long delays which are costing them money.

But, it's files which attract callers, so although it is possible to run a BBS from floppies on a temporary basis it isn't really viable in the long term.



An example of how to make your board interesting – the information screen from the Big Bang BBS

RAM DRIVE

If you have plenty of RAM you could conceivably run the BBS from RAM. You would, however, need to copy any data files to disk regularly to ensure that they weren't lost if the power went down.

RAM does give you very fast access, but that's about all. The risk of losing the board at a moment's notice due to a power cut or something similar is really too great to allow its use.

A RAM drive could be used in conjunction with a traditional floppy drive to give extra storage space, for the BBS software perhaps. This would make using floppies much easier and quicker, although it's still far from ideal.

HARD DRIVE

This is by far the best method of storing the files required for running a BBS. Indeed, it is the only way for a serious BBS of any size.

The Amiga does have a disadvantage compared to other machines when it comes to hard drives in that they are quite expensive compared to drives for other machines, although, with a little shopping around, it is possible to get pretty large drives for a reasonable price nowadays.

The minimum size for a hard drive-based system is really 30 megabytes although a 20 megabyte system would suffice for a while. Remember that if your board begins to get more successful in the future, you will probably want to upgrade to give yourself more room for files.

WHICH SOFTWARE?

Finally, you'll want some software.

There are plenty of packages around to choose from, from freebie systems written in Basic to full-scale commercial packages which can cost several hundred pounds.

It is best to plan the layout and feel of your board *before* you get the software. That way you can ensure that the software you get can do what you want it to. This enables you to create the board *you* want rather than what the software wants.

We'll be taking a close look at the various packages available next month but before then we'll discuss how to design your bulletin board, and make it a success.

IT'S ALL IN THE NAME

The name you choose for your BBS is important. A good name will attract callers. What constitutes a good name depends on your point of view, but it's still worth putting a little thought into this area...

If you wish only to attract Amiga callers then putting *Amiga* in the title gets the message across immediately. 01 FOR AMIGA for instance is clearly an Amiga only board.

Alternatively you could choose a name relating to the theme of your board, something which will make it stand out to other people interested in the subject matter. For instance, The Big Bang Burger Bar will immediately attract the attention of anyone interested in *The Hitch Hikers Guide To The Galaxy*, where the name comes from.

Or you can choose an unusual name. People will always be attracted to the board because of the name. Pernicious Anaemia BBS falls into this category.

Once you've chosen your name, it's a good idea to check to make sure that one does not already exist with the same name. It would be confusing and counter productive to have two boards with the same name and some sysops defend their names with vigour.

ANATOMY OF A BBS

A lot of thought must go into what your board is going to contain, and what is going to make it stand out from the rest of the BBSs.

A BBS is divided into several sections, we'll take a look at each one in turn giving a quick description of what you'll find there.

1 MAIN MENU

The main menu is the first area callers see. From here it should be possible to get to most other areas on the board. It is also a good idea to include some general purpose options from here such as a help command for users to find out more about the layout of the board, and a "page sysop" option to allow users to chat to you.

2 BULLETINS

The bulletins area is a selection of text files accessible from a menu.

Exactly what is contained in the text files is up to you but common items include board news containing any important announcements you wish to make, information about the board such as its history, items you have for sale second-hand and the rules and regulations that apply to the board.

Sysop specials

Some sysops are also able to run special offers with the help of local shops and sell disks, software, hardware and sometimes public domain software. The bulletin area is the ideal place to advertise that sort of thing.

Other boards

Many bulletin boards supply lists of other recommended BBSs. Again, this is a good place to put a text file giving details of your own favourite board.

Some bulletin board software has special support for a bulletin area which will ask users if they want to read any bulletins every time they call and inform them if any have changed since they last phoned the board. If you are planning on placing a great deal of emphasis on bulletins, it would be worth

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considering software which has this facility.

Either way, it is a good idea to make it easy for callers to download the bulletins as files, preferably by having LIST FILES and DOWNLOAD options on the bulletin menu. This is a feature missing from all the boards I call; something I'd like to see corrected.

3 MESSAGE AREA

All bulletin boards have message areas of one sort or another.

You should provide areas for private e-mail, general discussion and probably an area for Amiga specific discussion.

Which other areas you provide is entirely up to you. Coverage of other computers, such as PCs, will attract other callers but you will really need room for storing PC software.

A better bet, particularly if you only have a limited amount of space, is to have general discussion areas, covering sci-fi perhaps or television programs. If your board has a specific theme then message areas for related subjects are a must.

For example Pernicious Anaemia BBS has horror as its theme, in particular vampires. It has a message area for vampire-specific discussion and an area for general horror chat. See below for more information on bulletin boards with a theme.

4 FILES AREA

The files areas are the most important part of a BBS, particularly an Amiga one. You should aim to provide as many files as you possibly can, all archived, and make them as easy to find as possible.

The easiest way to do this is to split the files area into several sections, eg:

- Communications
- Virus utilities
- Music
- Graphics
- Games
- Text files
- Programming utilities
- Word processors and text editors

Obviously, if you only have a few (less than 50) files it is easier to combine them all into one list, perhaps dividing the file list into the appropriate sections. If you have more than fifty or so files it is worth dividing the file area into categories.

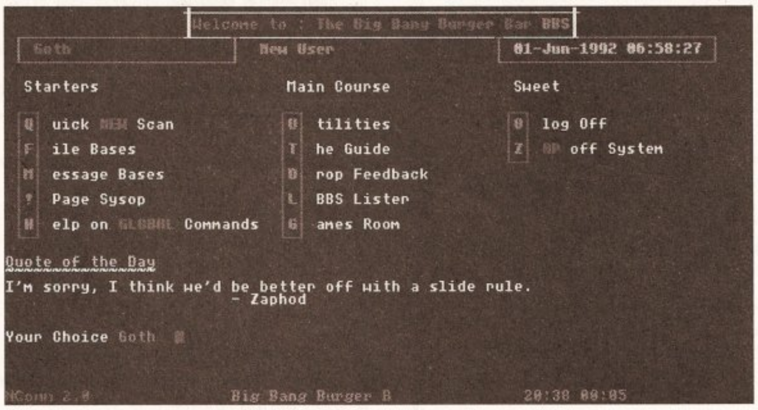
Searching questions

A "search for filename or description" option is also an important part of the files area. This allows people to find the software they want, quickly and easily.

It is also important to have a full file list available as a text file, ready for downloading. Make this file nice and visible so that it is easy to find. You could even go as far as having a specific menu item which allows you to download the list from wherever you are.

VIRUS FREE!

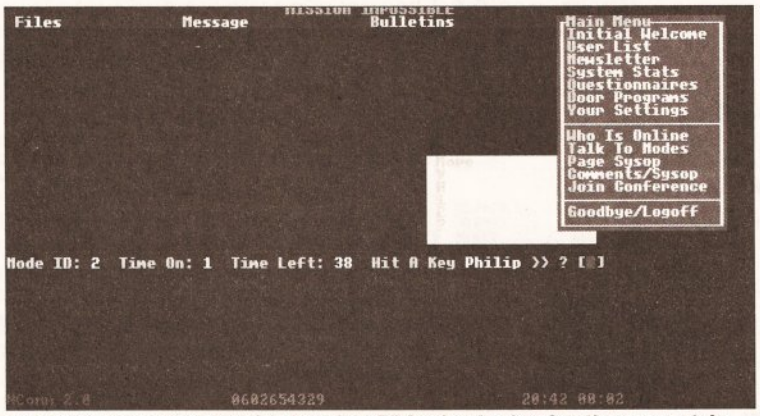
You should check all files for viruses, taking particular care to inspect uploads. Make it clear to users that you do so.



The main menu from the Big Bang Burger Bar BBS. Clever names like this are a good way of attracting callers, but the work doesn't stop there...

It is also a good idea to decide on a standard archive program which is used to archive all the files on your BBS. This makes it easier for beginners as they don't have to have lots of different archive programs and can get used to one in particular. Which archive program you use is up to you. I'd recommend *LHA*.

If your files areas are well organised, easy to use and contain useful, up-to-date software, your board will be a success. Once you have the callers the messages will begin to mount up and the board will become more interesting, attracting even more regular callers.



The main menu from Mission Possible BBS, clearly showing the menu style layout. Easy to use; that way you won't lose any callers

5 CONFIGURATION MENU

This area is designed for users to configure the system for their own use. From here they can tell the system whether they want to have ANSI (colour) menus, how many lines per screen their comms package has, the type of editor they wish to use etc.

6 STATISTICS MENU

Most BBS software enables you to compile statistics about the users who call your board. The amount of information depends on the software but can include the number of calls, both total and per user, the speeds used, the number of downloads and which protocols were used how often.

Very often to compile these statistics you will need external programs and we'll be taking a look at the sort of programs available in a future issue.

7 DOORS

A door is an external program that can be run by the users. Most commonly this is some form of on-line game, and as such it can be very enjoyable. Other doors include a "time bank" where users can store the time they have left on the board for a later date, and interactive BBS lists.

8 LOGOFF MENU

You should have a log off menu giving users the chance to change their mind about whether they wish to leave the BBS. A handy option to include is the ability to leave you a message before leaving the BBS.

Once the user has chosen to leave the board the final log off message is a good place to make some friends. If you place brief details of other boards you recommend users will see them as they log off and give them a call.

The sysops of those boards will be more than grateful for any publicity they get and will probably return the favour.

STANDING OUT FROM THE CROWD

There are literally hundreds of bulletin boards in the UK, all offering very similar facilities and files. In order to make your board stand out it is important to offer something different, something to attract people to your board.

LAYING OUT

Once you have attracted your callers you need to keep them.

The best way to do this is to make your board interesting to use by adding pictures to each menu, or laying each one out in a specific style. Pernicious Anaemia, for instance has a horror-related quote at each menu; Mission Impossible BBS has menus laid out to resemble drop down menus on a computer.

It is important though that the BBS is still easy to use, even with your fancy layout. And if you use a lot of ANSI graphics then be careful not to make things too complicated, otherwise the board will be too slow for slow callers to use.

USER FRIENDLY

It doesn't matter how pretty the board is; if it is difficult to use, or too slow, people won't use it.

Stay user-friendly at all times. Help files makes the board easier to use. Having a help file on each menu is tedious to set up but is a great boon, particularly for new users.

THEME TUNES

Another way to attract, and keep, callers is to have a board theme.

If you have a hobby or interest (apart from the Amiga) you can use that as a theme for the board and attract other like minded people.

For instance, The Big Bang Burger Bar has a *Hitch Hikers Guide to the Galaxy* theme and attracts users who have read and enjoyed the books. Pernicious Anaemia specialises in horror films and books, in particular vampires. A lot of its callers have an interest in that area.

It is also possible to have a computer-related theme; programming or AMOS, for instance. It does help to have some knowledge in the area though, otherwise you'll be inundated with questions you can't answer.

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FIDONET LINKS

Another way to attract callers is to provide a Fidonet link. Fidonet provides you with a host of messages and the facility to send electronic mail to any Fidonet board in the world.

Obviously this costs money, and you're the one who has to pay for it. It's not usually too expensive though: one phone call per night to transfer messages.

It is also possible to get a central board to call you for a regular fee, usually around £35. For that you get all the messages you can handle and can also request files from other boards.

To run a Fidonet board you need to meet certain criteria, such as no pornographic or illegal material, real names only etc. If you're interested in finding out more about Fidonet, contact a local Fidonet sysop and he or she should be able to tell you who to get in touch with.

RULES OF THE GAME

Just as Fidonet has rules so should you. Of course, it's up to you exactly which rules you have – but when writing them you should bare in mind the sort of user you want to attract, the range of users who use bulletin boards and also how strict you wish to be.

Too strict a board will result in less callers, and those who do call are more likely to break a rule they've forgotten about. If you don't have any rules, users don't know where they stand and some callers may be offended by the actions of others.

It is a very good idea to specify no uploads of commercial software. BBSs are often subject to checks and if any are guilty of piracy they can be closed down very quickly.

Foul language is also a good thing to ban; the range of modem users is very wide and many will be offended by bad language.

LIMITATIONS AND RATIOS

Most boards enforce limits on their callers' daily usage. Limiting the time on-line is the most common, along with the number of files they can download.

As users call more often and upload files, a nice touch is to reward those particular users, the regulars, if you like, with a higher security rating and allow them more time on-line.

To encourage uploads as well as downloads many boards enforce a "file ratio" which limits the number of files which can be downloaded depending on how many you have uploaded. You might for example only be able to download four files for every one you upload or alternatively you might be able to download 250K of files for every 25K uploaded.

A size restriction as in the second example is generally better for you because the uploads will be bigger and generally better. It's worse for the callers though, because they have to spend more time uploading.

Whether you enforce a file ratio is up to you. Speaking from experience, I don't think it makes much difference either way. The uploads you do get will generally not be of sufficient quality to warrant the restriction and there will always be users who will download as many files as possible before moving on to another board.

Most BBS software enables you to give people who upload software a "prize" of more time on the board and this is a better way to encourage uploads, twice the amount of time spent uploading added to the users' time on-line is common.

MEMBERSHIP FEES

Some boards offer a membership scheme for callers. For a small fee (usually around £10) users are given much greater access to the board than non-members, given longer time on-line and are allowed to download more files.

Many boards which offer membership have special members-only lines and areas which contain the best software downloadable for free.

Other advantages are usually given, perhaps a help-line, or the ability to send a disk to the sysop to obtain the software on the board without having to download it.

The only boards that can really offer a membership scheme are those which offer a large number of files and other services.

There are so many boards around that it must be something really special to be able to charge for access. Most users would rather go to another BBS and get the same software for free.

THAT'S ALL FOLKS

That's it for this time. Next month I'll be taking a close look at the BBS software available and comparing the various facilities so that you can decide which option is best for you.

Philip Harris can be contacted on CIX (081 390 1255) as piharris.

The excellent Big Bang Burger Bar is on 081 420 6356 while Mission Impossible BBS is on 0602 654329.

ORGANISATIONAL OPTIONS

There are three main options when deciding on the layout of your board, subject-based, area-based or mixed.

SUBJECT-BASED

On a subject-based board all actions associated with a particular subject area are grouped together under one menu. For example, all access to the Amiga files and messages would be via a single Amiga menu. There would be corresponding menus for other areas, PC, films etc. This option can result in the menus being cluttered so menus need to be carefully designed.

AREA-BASED

On an area-based board actions are grouped together with entries for each subject available. For example, there would be a files menu, the files menu would allow you to download a file from various groups, Amiga, PC etc. There would be similar areas for messages etc.

MIXED BASE

As the title suggests this is a mixture of the two. Options at the main menu allow you to branch into areas such as Amiga or PC. From there each subject menu allows you to branch to messages or files. This type of layout makes the system menus less cluttered, trying to fit all the message reading options and all the file download and search options on one screen is not always an easy task.

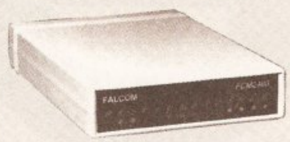
Which type you use is entirely up to you; it makes very little difference to the user. Your BBS software may have been written with a bias to a particular sort of layout, so try and have a chat with someone who already uses that particular software, to make sure your ideas are usable.

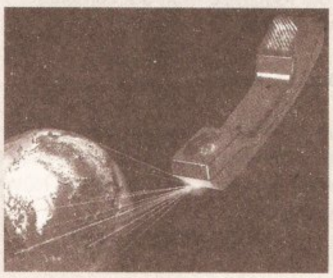
WHAT YOU NEED



The fundamental building block of the BBS board. An A500 will do just the job. This is where all the action starts – software downloads for free and you can chat 'til the early hours with other nightbirds...

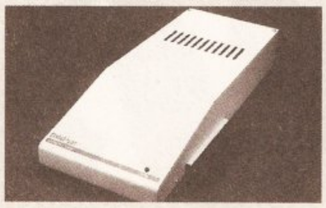
Next up's the modem – the faster the better. Remember the quicker users can carry out uploads and downloads, the less time they spend on-line and the more often they will visit





Don't overlook the need for a phone line. Check out the telecommunications rivals, BT and Mercury, to assess the potential size of the hole to be burned in your pocket

A hard drive is not essential, but it will speed up your board, enabling your BBS to store more files – an essential element in ensuring your board is a success



Cracking the shell

Mark Smiddy demonstrates The Pest appointment scheduler for AmigaDOS 1.3

Does anyone out there still use AmigaDOS 1.3? It's slow, bugged and written in a language, BCPL, few people have even heard of – let alone programmed in. I can understand folks still using the 1.3 ROM to retain downward compatibility, but still being stuck with AmigaDOS 1.3 must be a comparative nightmare. Like all classics, AmigaDOS 1.3 is still the weapon of choice for many of you – as has been pointed out by the battery of indignation from 1.3 users wanting to use *The Pest* (*Amiga Shopper* 13).

For those who missed it, the original *Pest* is shown in Listing 1 and only works with AmigaDOS 2 or higher. The main bone of contention lies with the use of the revised environment handler in lines 4 and 5. (Additionally, commands such as IF, ELSE and ECHO are automatically resident in AmigaDOS 2 and make this startup extension execute at a reasonable speed.)

The compatibility problem is this: in AmigaDOS 2 an environmental variable can be read directly by a command by preceding the variable's name with a dollar symbol. For instance, say you gave the arbitrary variable NAME a value of "Mark", and then typed the following:

```
1>ECHO "Hello $NAME"
```

The response from the computer would be:

```
Hello Mark
```

In *The Pest* the current date is sent to a file and processed into a global environmental variable (called NOW) using EDIT.

Typically, a date such as:

```
Monday 2-Mar-92 12:30:04
```

becomes:

```
2-Mar-92
```

At Line 4, *The Pest* creates a print file using the environmental variable NOW, which will contain a string such as this one here:

```
== Reminders for: 2-Mar-92 ==
```

The same thing can be achieved in AmigaDOS 1.3 by joining files together:

```
echo >T:pf1 "== Reminders ↵
for: " noline
echo >T:pf2 " ==*n"
join T:pf1 ENV:now T:pf2 ↵
AS T:pf
```

An alternative method which achieves the same effect looks like this:

```
echo >T:pf1 "== Reminders ↵
for: " noline
join T:pf1 ENV:now AS T:pf
echo >>T:pf " ==*n"
```

Of course, both those methods assume you want to exactly mirror the original function provided by the AmigaDOS 2 version.

In practice, it would be better to just use a simpler string as is shown here:

```
echo >T:pf "== Reminders ↵
for today ==*n"
```

A more subtle problem arises at Line 5 where the reminders file is being searched for specific dates, because the search string is read directly by AmigaDOS from the NOW variable. The solution is to trick AmigaDOS 1.3 into reading the variable from a file, and this can be accomplished using interactive mode, by following the command with a question mark:

```
search <ENV:now s:Reminders ?
```

Here, I've reduced the command to its most basic format.

The file "S:Reminders" is being searched for the string contained in "ENV:now".

Interactive mode has been covered previously in this series, but it's worth going over again because it is an important, misunderstood and very under-used concept.

You are probably already aware that if you supply a question mark as part of a command line, AmigaDOS spits out a command's template and waits for you to enter something. This technique was quite widely used in older versions (1.2 and earlier) to pre-load commands such as DIR. The arrival of RESIDENT in 1.3 and ROM-based AmigaDOS at 2.x means this technique has been almost forgotten.

The key thing to remember is this: when a command enters interactive mode, it can read input

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LISTING 1 • LISTING 1 • LISTING 1

The Pest AmigaDOS 2 version

```
1. echo >T:Auto1 "DTA/ /*nDFA/ /"
2. date to T:today
3. edit T:today to ENV:now with T:Auto1
4. echo >T:pf "== Reminders for: $now ==*n"
5. search >>T:pf s:Reminders "$now" nonum
6. if warn
7. echo "Nothing in reminder diary today..."
8. else
9. run more T:pf
10. endif
```

LISTING 2 • LISTING 2 • LISTING 2

The Pest AmigaDOS 1.3 Version

```
1. echo >T:Auto1 "DTA/ /*nDFA/ /"
2. echo >T:Auto2 "2n;d"
3. echo >T:pf "== Reminders for today ==*n"
4. date >T:today
5. edit T:today to ENV:now with T:Auto1
6. search >>T:pf <ENV:now s:Reminders nonum ?
7. if warn
8. echo "Nothing in reminder diary today..."
9. else
10. edit T:pf to T:pf1 with T:Auto2
11. run more T:pf1
12. endif
```

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from anywhere – including files. This effect can be achieved by supplying a command's argument in a file and preceding the filename with "<" (redirect input from file). Here for example, the search string is read from the contents of the file "ENV:now":

```
search <ENV:now s:Reminders ?
```

Interestingly enough, it is also possible to supply further parameters on the command line too. Therefore, since *The Pest* uses the NONUM switch, we can add that too:

```
search <ENV:now s:Reminders ↵
NONUM ?
```

The following piece of code should help illustrate the usefulness of using the question mark to put AmigaDOS into interactive mode. Try typing it in and executing it, but take note of what happens when you do so.

```
LIST >T:Temp SYS:
ECHO >T:Search ".info"
SEARCH <T:Search T:Temp ↵
NONUM ?
```

The first two lines create a dummy file to search and something to search for respectively. This just ensures the SEARCH command will do something. Execute the search a couple of times and watch what happens.

Notice how the command's template appears? If this output were being sent to a file, that template would also appear and would look messy. This technique is usually used with output redirected to the NIL: device and the condition codes (WARN, ERROR and so on) tested, but *The Pest* creates a file based on SEARCH's output.

The solution therefore is to create another EDIT macro which will hack out the extraneous information and make the output look better. As it turns out, this is quite simple to do. The file consists of a header, one blank line, then the unwanted template. Therefore the EDIT macro is constructed to skip two lines and delete the next one like this:

```
2n;d
```

A script based on this idea is shown in Listing 2 and should be inserted just before the LOADWB command in the startup-sequence. Alternatively, you can execute the script in its own right – but this should be done late on in the startup-sequence.

PEST CONTROL

Most of this article has so far concentrated on the use of the SEARCH command to locate and print text strings within a file – that is, after all, what it's there for. However, the AmigaDOS line editor also has a search feature and with a little cajoling it can be pressed into useful service.

The basic idea is this: get EDIT to search for any lines containing the required string – a date in this case – and display them. In fact, this is more complex than it appears. Because EDIT is a line editor, it stops when a matching string is found on a line; initiate another search from the same position and EDIT finds the same occurrence. In other words it get locked in a loop – always assuming you can get it to

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LISTING 3 • LISTING 3 • LISTING 3

The Pest 2 – Newshell/EDIT Version

```
echo >T:Auto1 "DTA/ /*nDFA/ /"
date >T:today
edit T:today to ENV:now with T:Auto1
search >NIL: <env:now S:reminders ?
if warn
echo "*e[0;0H*e[JNothing in reminder diary today..."
else
echo "*e[0;0H*e[J== The Pest (1.3) ==*nOne moment ↵
please..."
echo >T:Auto2 "2CL"
echo >T:a "0(f/"
echo >T:b "/;?;n)"
join T:a ENV:now T:b AS T:c
edit T:c TO T:Auto3 with T:Auto2
edit S:Reminders with T:Auto3 VER=* TO=NIL:
ask "Press <Return> to exit"
endif
endcli
```

AMIGADOS MASTERCLASS

DOS-2-DUALITY

For a number of reasons I am not a big fan of ROM switches, however I have to admit, there are benefits of having two operating systems in one machine. One of the disadvantages, of course, is the incompatibility between AmigaDOS 1.3 and AmigaDOS 2. Several readers have written in asking if it's possible to automatically sense which Kickstart is in use and load the appropriate version of Workbench/AmigaDOS from a hard disk.

The obvious approach is to use the AmigaDOS 2 boot menu (hold both mouse buttons after a reset) and have two bootable partitions on the hard disk. The first partition contains a 1.3 Workbench, the second contains version 2. This can be problematical – especially if you have a mouse based ROM switch.

One option is to ask which Kickstart is in use, then execute the correct sequence. It could look something like this:

```
ASK "Press Y <Return> for 1.3 or <Return> for 2.04"
IF WARN
EXECUTE S:Boot1.3
ENDIF
; The 2.04 boot sequence continues here…
```

Besides being a little awkward, this doesn't actually work very well! If you display something early in the AmigaDOS 2 Startup-sequence, the default screen preferences are loaded from ROM. This causes IPREFS to complain when it starts later in the script.

The only other alternative is to build a startup which will automatically sense which Kickstart version is in use at the time and load the appropriate Workbench. This method is shown in Listing 4 as a script fragment which should be entered at the beginning of the main Workbench 2 Startup-sequence.

HOW IT WORKS ECLECTIC STARTUP

1. Creates a file in the RAM disk containing the location of ECHO. This command is resident in AmigaDOS 2, and a transient command in older versions. Therefore the file will contain either:

```
RESIDENT ECHO
-or-
C:ECHO
```

2. Tests the file created in the previous step for the presence of the substring: RESIDENT. If this is found (as it will be for Kickstart 2) the WARN flag will be cleared; otherwise it will be set.

In effect, the WARN condition, warns (well, what else would you expect something called 'warn' to do?) of the lower Kickstart version. (Conventionally, this test could be done with VERSION, but the command can be problematical when used in this way.)

3. Checks which version of Kickstart is in use and branches accordingly. Kickstart 1.3 causes execution to continue; Kickstart 2 causes execution to branch to 10.

4. Calls the 1.3 ASSIGN command to re-assign the command directory. (See notes below).

5-8. Re-assign the main system directories to their correct positions on the hard drive.

9. Runs the original 1.3 Startup-sequence.

10. Close the IF construct opened at 3. Execution only gets here if the 2.04 Kickstart was sensed.

continued on page 97

continued from page 95

USING ECLECTIC STARTUP

If only it were that simple! In many respects it is, but a certain amount of work remains, to ensure you do get a complete 1.3 Workbench. Before you run this script for the first time you should copy the appropriate directories from an original copy of Workbench 1.3.x. Assuming you have booted from the hard disk (into AmigaDOS 2) this is what you have to do:

```
MAKEDIR SYS:DEVS_1.3
MAKEDIR SYS:LIBS_1.3
MAKEDIR SYS:S_1.3
MAKEDIR SYS:L_1.3
MAKEDIR SYS:C_1.3
MAKEDIR SYS:System_1.3
MAKEDIR SYS: Prefs_1.3
COPY df0:DEVS SYS:↵
DEVS_1.3 ALL
COPY df0:LIBS SYS:↵
LIBS_1.3 ALL
COPY df0:L SYS:L_1.3 ALL
COPY df0:S SYS:S_1.3 ALL
COPY df0:C SYS:C_1.3 ALL
COPY df0:System ↵
System_1.3 ALL
COPY df0:Prefs ↵ Prefs_1.3
ALL
COPY df0:fonts FONTS: ALL
COPY df0:System.info ↵
SYS:System_1.3.info
COPY df0:Prefs.info ↵
SYS:Prefs_1.3.info
```

You also need to modify the following in the 1.3 Startup-sequence. (Don't forget, the 1.3 startup script is in S_1.3!) These lines:

```
SYS:System/FastMemFirst
SYS:System/SetMap GB
Path ram: c: sys:system ↵
s: sys:prefs add
```

should be re-written thus:

```
SYS:System_1.3/FastMemFirst
SYS:System_1.3/SetMap GB
Path ram: c: system_1.3 ↵
s: sys:prefs_1.3 add
```

GOTTA PROBLEM?

If you get stuck with AmigaDOS or there is anything specific you would like to see covered here, drop a line detailing your conundrum to: Mark Smiddy, Amiga Shopper, 30 Monmouth St, BATH, BA1 2BW. Sorry, no personal correspondence can be entered into. You can EMail me on CIX @ "SMIDOID".

continued from page 95

loop in the first case that is.

The solution is a macro like the following:

```
0(f/"string"/;?;n)
```

Briefly, here's what it all does…

• ;
The semi-colon character is used as a command separator.

• 0()
The commands contained in brackets are executed in a loop until the input is exhausted.

• f/"string"/
Locate the string "String" anywhere in the current line, or search the text until any occurrence is found. (The string in the final script is assembled as part of the macro.) This function is case-sensitive so UPPER and lower case are different.

• ?
Display the current line. Strictly speaking this is the verify function which sends output to EDIT's own verify display port. This is usually the current console and the relevance of this will become clear later on.

• n
Go to the next line, or stop if there is no input left to search.

Unfortunately, that is not the complete answer. EDIT normally outputs every line it scans to the console or the TO file. It also generates a separate "verify" output and this is the one we will use here. The main scan output will be sent to oblivion down the NIL: device, and only the lines displayed with the '?' command will be shown.

HOW IT WORKS

Listing 3

The complete EDIT-based *Pest* is longer, but the exercise gives rise to some interesting examples in its own right. You should note that a lot of commands are grouped together, and thanks to the disk caching system, this reduces the amount of disk access.

The Pest was only intended for AmigaDOS 2 because it takes advantage of the ROM-based (internal) commands, but this script was provided as an alternative that will only work in AmigaDOS 1.3. Here's how it all works:

1. Creates an EDIT macro that will be used to extract the date component from the day/date/time format provided by DATE at Step 2. See *Amiga Shopper* 13 for a more complete description.

2. Reads the current system time and date and sends it to a file called Today.

Of course, your system must have a real time clock for this to be of any benefit.

3. Edits the date in the Today file as described at Step 1. The edited version is sent to the file, "now".

4. Looks in your reminder file to see if any dates match the current date read from the system clock. If no match is found, the WARN flag is set; it is cleared otherwise.

5. Tests the WARN condition from Step 4. If no matches were found (in which case WARN=TRUE) execution continues at Step 6. If WARN is not equal to TRUE, control branches forward to Step 7.

6. Clears the screen and displays a short message.

The screen is cleared using the short escape sequence: *e[0;0H*e[J. (This is available from Shell using the alias CLEAR.)

7. If execution gets here from Step 6 it branches directly to Step 16; otherwise it continues at 8.

8. Clears the screen and displays a two line message. (See Step 6.)

9. Creates the EDIT macro, Auto2. This command tells EDIT to concatenate (join together) three consecutive lines. Literally, two lines, twice.

10. This is the first part of an EDIT macro which will form the search. The text in quotes is written to the file 'a', held in the RAM directory 'T'. The line ends at the first delimiting "/"; a line-feed will automatically be appended.

11. This is the third (not second) part of the EDIT macro mentioned above. Note how it begins with the closing "/" delimiter.

12. The three files are now married together to form something which (assuming the date was 12-Jun-92) would look like this:

```
0(f/
12-Jun-92
/;?;n)
```

Of course, that doesn't make a macro, but it is necessary to include a variable in a complex string such as this one. Next the string has to be assembled…

13. …which is what this does. Look back at that macro, Auto2. It joins the three lines together as one and presto – a macro is created and ready to run.

14. In effect this just runs the macro, Auto3. The reminders file is scanned for the current date and any matches are displayed on the current console. The TO file is directed to NIL: so spurious rubbish produced by this command is not displayed.

15. Forces a short delay so you can examine the list of jobs to do.

16. Closes the IF…ELSE…ENDIF construct opened at Step 5.

17. Close the current Shell.

It's important to note here that this command can be the last one in the normal startup-sequence if you include either version as part of your usual startup. It must be included if you start *Pest* using the NEWSHELL command:

```
NEWSHELL FROM S:Pest
```

LISTING 4 • LISTING 4 • LISTING 4

Eclectic Startup-sequence

```
1. which >RAM:temp ECHO
2. search >NIL: RAM:temp "RESIDENT"
3. if warn
4. C_1.3/ASSIGN C: SYS:C_1.3
5. C:ASSIGN S: SYS:S_1.3
6. C:ASSIGN DEVS: DEVS_1.3
7. C:ASSIGN LIBS: LIBS_1.3
8. C:ASSIGN L: L_1.3
9. execute S:Startup-sequence
10. endif
11. ;The Workbench 2.04 startup continues here
```

COMING NEXT MONTH

Next month's Cracking the Shell will demonstrate how to program a perpetual calendar in AmigaDOS. See you then.

AMOS ACTION

Jason Holborn spills the beans on what's hot and what's not in the world of AMOS, continues his tutorial on AMOS for beginners and explains the art of creating high score tables...

AMOS Action may only be three pages long this month, but don't worry, we haven't sacrificed on content. We've all the usual features including games programming focusing on high score tables this month and AMOS for beginners which highlights the joys of hardware scrolling. Oh and don't forget to check out page 104 for Europress' AMOS challenge.

Changes are afoot in the world of AMOS. Just when I was starting to think that the AMOS scene had nothing new to offer since last month's exciting installment of AMOS Action, I get a letter from Anne Tucker of *Totally AMOS* fame informing me of some quite major changes that are taking place in the organisation of the official AMOS PD library (it's deemed official because it was launched with the assistance of Europress Software).

Until now, the AMOS library had been handled very capably by my good friend Sandra Sharkey. As anyone who has either bought disks from Sandra or just simply monitored the library's development will know, Sandra has done a sterling job of launching and then fine tuning the library into the ultra-efficient miracle of PD distribution which we now know. Sadly though, it seems that Sandra has stepped down from her mantle in order to pursue her own interests. I'm sure we would all agree that Sandra will be sorely missed from the AMOS scene.

Bad news indeed, but it seems that this story at least does have a happy ending. Finding a replacement for Sandra is a formidable task indeed, but AMOS owners can rest easy with the news that the official AMOS PD library has been placed in the capable hands of Len and Anne Tucker, two very talented and active members of the AMOS community.

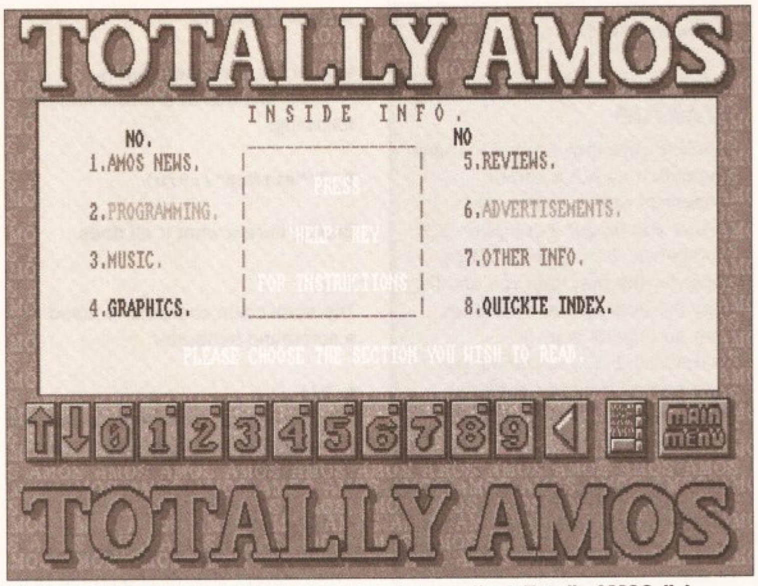
PRICE FREEZE

Even Len admits that filling Sandra's shoes is not going to be easy, but he feels confident that he and Anne will be able to maintain the standards of service which have made the AMOS PD library the choice for AMOS programmers and developers alike. Indeed, the changeover should be transparent to most customers thanks to Len's decision to freeze prices on all the library's range of PD and licenseware disks.

You can find out more about the AMOS PD library and its extensive range of AMOS only disks by writing (stamps are jolly expensive these days, so don't forget to include a stamped addressed envelope!) to Len at 1 Penmynydd Road, Swansea SA5 7EH. Alternatively, you can call Len or Anne on 0792 588156.

TOTALLY AWESOME

On the subject of Len Tucker, I'm sure both Len and Anne would be very grateful if I mentioned the fact that issue 4 of *Totally AMOS* is now available and issue 5 is only a matter of days away. Each issue is packed full of reviews, tutorials and hints and tips all of which are designed to make your AMOS programming sessions more productive. For more, contact Len on the address (not forgetting to enclose a SAE of course!). Or you can talk to them on 0706 376572.



If you're an AMOS user, then don't miss the excellent *Totally AMOS* disk magazine. As the name suggests, *Totally Amos* is dedicated entirely to AMOS

AMOS ANSWERS

If AMOS is giving you grief, then let Jason Holborn bring relief

MAZE CRAZY

I am trying to write a game for my children which involves them guiding a frog around a computer-generated maze. I have already managed to get mazes stored as IFF pictures working, but they take up a lot of disk space. What I need is a routine in AMOS which will automatically generate working mazes with either 8 or 16 pixel wide paths.

Derek Dodson
Southend-On-Sea, Essex

Hmm, sounds like quite an interesting project to set all you AMOS programmers out there. In fact, it's so interesting that I think I'll turn it into a mini-competition. If you think that you can write a routine which will do the job, then send it into the usual address. Entries will be judged on efficiency of code and the quality of the end results. Apart from the enviable accolade of seeing your name in print, the winner will also receive a piece of mystery software. Go for it!

DIRECT QUESTION

When one of my programs starts to get quite large, Direct Mode stops working and I keep getting a message saying 'Too Many Direct Mode Variables' even though I'm not using any. Is there a way around this problem?

Is it true that Sierra OnLine is writing a game using AMOS called *Hotel Manager* which is very similar to *Monopoly*. Would it need to get permission from Waddingtons?

Paul Michalak
Chasetown, Staffs

AMOS' error messages are sometimes a little misleading. The error message that you're getting hasn't got anything to do with Direct Mode variables; it is being caused by a lack of memory. If possible, try to split your program up into several smaller programs and then chain them together. This will save a lot of memory. Failing that, get some more RAM.

Unless a program is a blatant copy of an established game, then you won't need to get permission from a third party to market it. If Sierra is producing a game based around *Monopoly*, then it will have to be somewhat different in its gameplay and graphics to avoid legal action from Waddingtons. If you do produce a direct clone of an established title, then you're asking for trouble.

continued on page 103

AMOS FOR BEGINNERS

HARDWARE SCROLLING

After last month's look at opening and positioning screens, we continue the theme with a look at hardware scrolling, probably one of the most powerful aspects of AMOS. For games that require the background image to be scrolled smoothly either up or down, left or right, AMOS' hardware scrolling facility gives you the tools to do the job with a minimal amount of fuss.

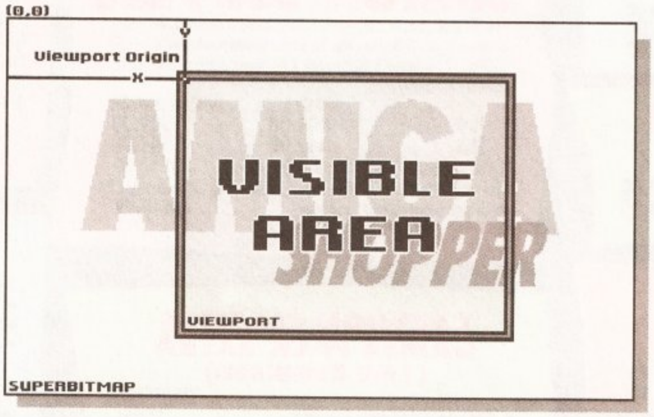
Considering the complexities of hardware scrolling, you'll be pleased to learn that incorporating hardware scrolling into your own AMOS programs is surprisingly easy. Indeed, all that is required to get things moving (pardon the pun) is the command – SCREEN OFFSET. The Screen Offset command is similar to the Screen Display command that we discussed last month except for one major difference.

THROUGH THE WINDOW

The Amiga's display is split into basically two sections – the main display (the area that sprites, windows and bobs can be drawn into) and the borders around this display area. Imagine if you will that the display area (or 'viewport' as the techies call it) is simply a window in your house which you look through to view bobs and sprites outside in your garden. With the Screen Display command, you can physically move the window around the wall, but with Screen Offset the window remains in the same position but the landscape outside it is moved instead.

All well and good, but there's one big problem. If the window is 320 by 256 pixels wide then the scroll area outside must be larger. After all, if the scroll area is scrolled one pixel to the left, a blank 1 pixel line will appear on the right. If the display is scrolled another pixel to the left, another blank line will be displayed. To get around this problem, you need what is known as a 'SuperBitMap'. A SuperBitMap is simply an image held in memory which is larger than the rectangular display area that you can see on your monitor.

Take for example a superbitmap that is 640 by 256 pixels. If your viewport is only 320 pixels wide, then only half of the superbitmap can be displayed at any one time. Using hardware scrolling however, it is possible to change the position of the viewport so that all of the superbitmap can be viewed. With a game that needs the background to be scrolled continuously in one direction, programmers cheat by simply looping round the superbitmap so that when the scroll reaches the bitmap's boundaries, it wraps back round to view the first part of the bitmap. If you understood that lot, then you've already got hardware scrolling sussed.



Hardware scrolling works by changing the position of the viewport so that a different section of a superbitmap is exposed

THEORY INTO PRACTICE

Now we've covered the theory, the time has come to put all that you've learned into practice. First though, let's take a look at the Screen Offset command. The format of the Screen Offset command is SCREEN OFFSET <Screen Number>, <ViewPort X Position>, <ViewPort Y Position>. The screen number parameter is pretty straightforward, but it's worth explaining the X and Y parameters.

These two values denote the X and Y position of the top left hand corner of the viewport in relation to the top left hand corner of the superbitmap. If, for example, you had a 640 by 256 pixel superbitmap and you wanted the viewport to display the middle 320 pixels of the superbitmap (we'll ignore the Y parameter for now), the top left hand corner of the viewport would have to be placed at 160 pixels left of the start of the superbitmap. The middle 320 by 256 pixels would be displayed with 160 by 256 pixels hidden on both sides of the viewport. To get this kind of display, you would therefore enter the line SCREEN OFFSET 1,160,0.

To actually scroll the screen, all you need is a continuous loop that counts up from 0 to 320 and then resets itself and starts counting again. When the counter equals 0, the first 320 pixels of the bitmap will be displayed and when the counter reaches 320, the second half of the bitmap will be displayed. Clever, eh? Let's take a look at the source code that will bring this to life.

```
Screen Open ↵
1,640,256,32,Lowres
Screen Display 1,128,,320,256
Flash Off
Load Iff "LOWRESPIC.IFF"
Screen Copy 1,0,0,320,256 ↵
To 1,320,0
Double Buffer
Do
For COUNTER=0 To 319 Step 4
Screen Offset 1,COUNTER,0
Wait Vbl
Next COUNTER
Loop
```

As you can see, the hardware scroll example above is fairly simple, but it does introduce a couple of new commands which you may not have encountered.

The program starts by opening a 640 by 256 pixel screen in low resolution. This creates a superbitmapped screen because the size of the bitmap that the program allocates is too large to fit on a standard low resolution display. In the next line we tell AMOS how large the bitmap must be – in this case, 320 by 256 pixels.

Next we turn off colour cycling (Flash Off) and load up a standard low resolution IFF image into our superbitmap. AMOS will automatically load the image into the left hand side of the bitmap so we must therefore copy the left hand side of the bitmap to the right hand side of the superbitmap. This effectively gives us two copies of the same image side by side within the same bitmap.

Finally we have Double Buffer. Double Buffering is quite complex. All you need to know for the moment is that the Double Buffer command is necessary to keep hardware scrolling nice and smooth. We'll be covering double buffering in great depth in a future issue.

GET SCROLLING

Once this is done, we can start to scroll the screen. The scroll routine contains two loops – one continuous loop and a conditional loop which is used to count from 0 to 319. We count to 316 simply because the scroll position will increment in steps of 4. Note that the loop doesn't count up to 320. This is simply because the loop starts at zero and therefore counting to 320 would actually give 321 steps (divided by four, of course!).

Another new command that you may not have encountered is Wait VBL. Wait VBL is a very important command that you'll find yourself using increasing more as you start to play around with graphics that are animated (moving). Wait VBL ensures that the Amiga only updates its screen display when the raster beam which draws the screen on to your monitor screen reaches the bottom of the screen. This way, we can ensure that no screen updates are made half way through a screen refresh. Don't worry if this confuses you – we'll be covering screen synchronisation in a future issue.

WHAT'S IN STORE?

So there we have it – hardware scrolling in a nutshell. Next month we'll be taking a look at software scrolling; AMOS' own scroll routines are somewhat more flexible than hardware scrolling. In the meantime though, practise what you've learnt by writing a couple of hardware scroll demos yourself. Anyone who doesn't do their homework will be put into detention!

Games programming on page 103

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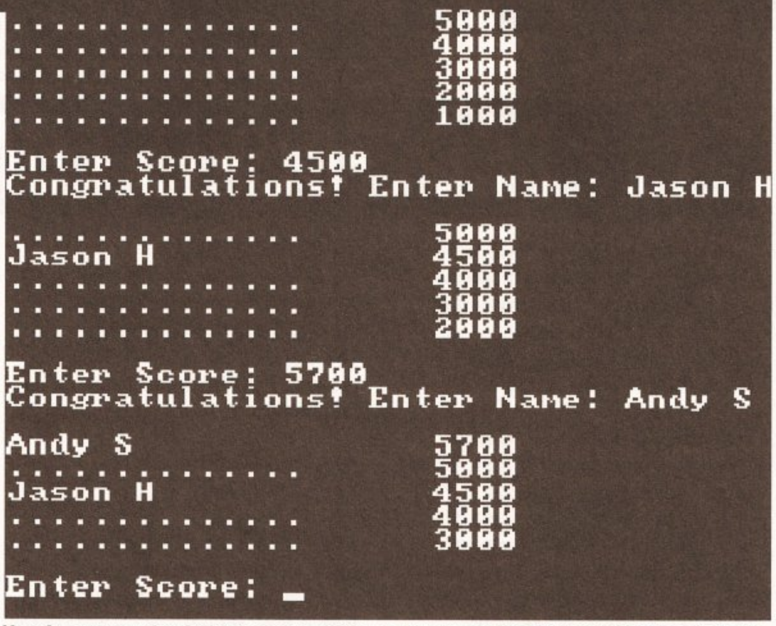
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GAMES PROGRAMMING

Over the past few months we've covered some pretty heavy subjects, so I thought it would be nice to take a break from our game and look at another routine that is equally important for games – the high score table. How you incorporate this routine is up to you, but the theory behind the high score table is pretty much the same.



Here's our very basic high score table routine in action. Obviously it needs to be tidied up in a big way if you intend to use it within your own games, but the bones of the routine are all there

HIGH SCORE TABLES

If you started working for a software house as a trainee programmer, you would probably start your apprenticeship writing routines of this kind so it's worth knowing how a good high score routine works.

At its simplest level, the high score table is held internally as two dimensional arrays – one for the score and another for the players' names. At the end of each game, the high score routine checks to see if the player has scored enough to be entered into the score table. If so, the player's position is inserted with all scores below the player's score shifted down by one position. This will mean that one score drops off the bottom of the table, but then that's how a high score table works. Anyway, enough of the waffle – let's take a look at the high score routine.

```
'*** High Score Routine v0.1
'*** By Jason Holborn

SETUPTABLE:
Dim ↵
SCORETABLE$(5),SCORETABLE(5)
For C=0 To 4
SCORETABLE$(C)="↵
.............."
SCORETABLE(C)=5000-(C*1000)
Next C
'
MAIN:
Do
For C=0 To 4
Print ↵
SCORETABLE$(C);SCORETABLE(C)
Next C
Input "Enter Score: ";SCORE
If SCORE>SCORETABLE(4) ↵
Then Gosub HISCORE
Loop
'
HISCORE:
Input "Congratulations! ↵
Enter Name: ";NAIM$
For C=4 To 0 Step -1
If SCORE>SCORETABLE(C) ↵
Then POSITION=C
Next C
For C=3 To POSITION Step -1
SCORETABLE$(C+1)= ↵
SCORETABLE$(C)
SCORETABLE(C+1)=SCORETABLE(C)
Next C
SCORETABLE$(POSITION)=NAIM$
SCORETABLE(POSITION)=SCORE
Return
```

As you can see from the code, the procedure which handles the high score array is simple. Before entering the routine, the main program checks to see if the player's score is higher than the lowest score in the score table.

Technically the score should be registered if it is equal to the lowest score, but there's just no room in the table to hold the new score. Presidence should be given to the first player to achieve that score. If you run the program above (I've added a few extra lines to make it run as a stand-alone program), you'll notice that when identical scores are entered, new scores are added beneath previous ones. This way you know who achieved the score first.

Once the score has been checked, the program jumps to the HISCORE routine which does all the hard work. First of all the program asks for the player's name. In the routine above this is very basic indeed. If you feel adventurous, a much better bet is to write a routine which enables the player to enter his or her name using the joystick. This way, the player will never have to touch the Amiga keyboard.

ALL FALLING INTO PLACE

The next part of the HiScore routine attempts to find the position within the high score table where the player's score should be placed. This is achieved simply by comparing the player's score with the scores already held in the high score table, starting from the lowest upwards. Once the position is found, it is held in the variable POSITION.

Now that we know where the score should be inserted, all scores below the player's score are shifted down by one position discarding the last score in the table. Once this is done, the player's name and score are inserted in the table and the new table is displayed.

SCORES ON THE BOARD

This high score table is by no means perfect, but it does the job. At the moment it will only hold five scores, but it's very easy to change this to make the table handle more scores simply by changing the size of the dimension and by altering the loop ranges within the HiScore routine. Play around with it and why not have a go at writing a better routine yourself. AS

continued from page 98

3D PROBLEMS

Why is it that I never seem to read a single word of criticism concerning AMOS in the AMOS section of *Amiga Shopper*? Although I would agree that BASIC itself is very good, I have been having serious grief with AMOS 3D since I upgraded to AmigaDOS 2.04. Although it runs fine under 1.3 (I've got a ROM sharer), the AMOS 3D Object Editor OM doesn't run at all under 2.04. What's more, it refuses to run from a Workbench icon under both 2.04 and 1.3. I've written to Commodore and Europress Software but neither of these seem to understand what is going wrong.

Alan M Grahame
Ampthill, Beds

I must admit that I'm just as confused as Commodore and Europress. I've got a 2.04-based B2000 and OM certainly runs fine on that. I've had many letters from AMOS 3D users who own 2.04-based machines and they don't seem to have encountered this problem either.

Presuming that you're booting from your AmDrive, it might be worth checking that your Startup-sequence isn't launching something weird which OM doesn't like – try breaking out of the startup-sequence as soon as the hard drive starts to boot and run OM from AmigaDOS. If it still doesn't work under 2.04, then I don't know what to suggest. Can anyone who has encountered this problem help?

NCOMMAND PERFORMANCE

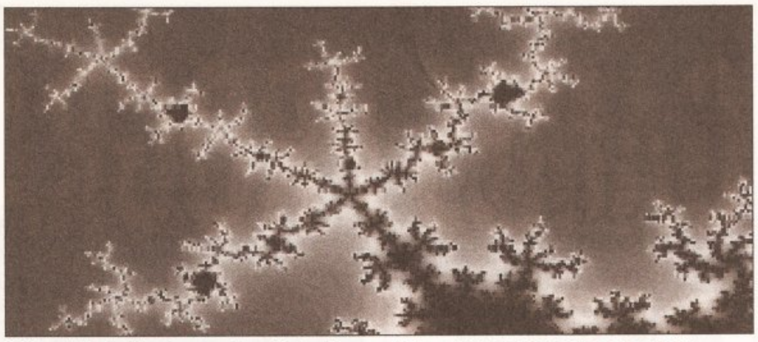
Could you please tell me where I can buy the *NCommand* procedures disk for AMOS?

Ben Merrifield
Barry
South Glamorgan

The address and telephone number for Oasis software was actually printed in the last issue but for those of you that missed it, *NCommand* and the new *NCommand Extras* disk are both available from Oasis Software at 392 Birch Road, Wardle, Rochdale in Lancashire. Failing that, you can talk to them directly on 0706 376572.

If you've got a problem with AMOS, send it to AMOS ANSWERS, Amiga Shopper, Future Publishing Ltd, 30 Monmouth St, BATH BA1 2BW.

AMOS ACTION



A fractal plotting procedure is just one of the utilities Europress is after

101 PROCEDURES COMPETITION

Get your AMOS procedures published! Europress, in conjunction with Amiga Shopper, wants your coding gems for inclusion with the forthcoming Amos Professional

Europress, the maker of Amos, is currently developing *Amos Professional.* One of this package's strengths will be the inclusion of folders crammed full of useful procedures that can be used to construct programs.

Europress plans to provide as many procedures as possible, but is sure the AMOS users that read the *AMOS Action* column in *Amiga Shopper* will have written plenty of great procedures that would benefit their fellow users.

Consequently, if you have any procedure routines then this is your chance to share them world-wide. Europress wants to include your routines on the actual *Amos Professional* masters. You'll get your name in the package credits, and will receive a free copy of the completed package with a personal message from AMOS author François Lionet thanking you for your contribution.

In an effort to standardise the procedures to aid their understanding by users, please follow the guidelines listed below:

NAMING PROCEDURES

When naming procedures start them with an underscore character ("_"). This will ensure that the name does not collide with any new instructions that are added to *Amos Professional* or extensions. It also allows the use of reserved keywords within the name:

```
Procedure _MYPROC
Procedure _PRINTBIG
```

If you write more than one procedure to perform a task then start the whole set of them with the same name. A set of scroll procedures might be called:

```
_SCROLL_INIT
_SCROLL_WORK
_SCROLL_END
```

VARIABLES

Use as few global variables as possible. Keep necessary variables hidden within the procedures. Other than arrays, don't make the user have to declare variables at the start of a program.

The variables within a procedure should start with an abbreviation of the procedure's name. The scrolling demo might have the following variables:

_SCRX (scroll X position)
_SCRY (scroll Y position)

Use the SHARED instruction to pass parameters between procedures:

```
Procedure _SCROLL_INIT[X,Y]
   Shared _SCRX, SCRY
   _SCRX=X; SCRY=Y
End Proc
Procedure _SCROLL_WORK
   Shared _SCRX, _SCRY
   Print _SCRX, SCRY
End Proc
```

ORGANISING

If you need to set up conditions before the procedures are used then have an initialisation procedure. There should be only one INIT procedure, which initialises all of its parameters:

```
Procedure _NAME_INIT[List ↵
of Init params]
```

When all is complete and you're ready to quit the use of your procedures, or even the program, then it may sometimes be necessary to provide an END of procedure routine:

```
Procedure _NAME_END
```

This procedure should also work if the initialisation routine failed. The INIT procedure should set a flag that says "OK, I'm initialised".

SYSTEM DEFAULTS

Don't assume a set screen type has been set up ready for your procedures' outputs. Set the screen format outside of the procedure so that other users can see what the routine needs:

```
Screen Open 0,640,200,↵
16,Hires
Proc GET_FONT["Times","24"]
```

If your routine requires the use of Bobs/Music/Sample Banks, then state what size they are and how many there are.

READABILITY

Ensure you comment your listings as clearly as possible. It's important to explain every aspect of a routine so that users can adapt them to their specialist needs. Also – keep the spelling clean!

DESTRUCTIBILITY

Bug test it with as many inputs as possible. If your routine is not stable it is of no use to anyone.

Trap all errors and return error codes if applicable.

Don't let your procedure interfere with the user's programs.

PROCEDURE STRUCTURE

```
Procedure NAME[X,Y,Z]
  '
  'Inputs:       X...
  '              Y...
  '              Z...
  '**************
  '
  'Output:       Param
  '              Param#
  '              Param$
  '**************
  '
  'Global variables used
  '(try avoid using these)
  'GL1, GL2, GL3...
  '**************
  '
  'Shared variables used
  '
End Proc
```

WHAT WE'RE AFTER

We already have the following procedures: Disk track read/write, Format disk, Expression parser, Scrolling routine, Date, Time.

We'd particularly like to see procedures to do the following: Chess algorithm, Screen saver, Rapid fire, Fancy screen wipes, Plasma FX, Radar, Magnify, Fractals.

FINAL NOTES

Send your procedures on disk, along with explanatory text both printed out and in ASCII on the disk. Include an SAE if you want your disk returning. Include an example program which uses your routine. You may include as many procedures as you wish on each disk so long as they are all properly documented. They will be judged by the AMOS team. Send your entries by the end of July to:

101 Procedures Compo
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Making a move

PROGRAMMING

Cliff Ramshaw continues his programming tutorial for beginners. This month – how the computer chooses a move in a game of noughts and crosses

It's all very well getting the computer to display a noughts and crosses board and accept moves from a player, but the really clever bit is in getting it to make its own moves.

There are at least a couple of ways this could be done. You might, for instance, write a program that tried to play as much like a human as possible. Its starting move would be to take a corner position or the centre. Then it would start looking along each of the possible lines with which it could win – eight in all. If it saw two noughts together and a gap, it would place a nought there. Otherwise, if it saw two crosses together it would place a nought in the gap to prevent the player from winning. If there were no pairs, perhaps it would try placing a nought in one of the remaining corners.

As you can see, there are many possibilities. Playing noughts and crosses isn't as simple as it at first seems. The problem with writing a program to play in the above way is that it will consist of little more than a huge list of If statements. It would be nice if there were a strategy which would work out the best possible move from any board position. And indeed there is such a strategy.

It's similar to the one used by chess programs, although a little simpler. It does not work in the same way that a human plays the game. Instead, it looks at every possible move, and decides which is the best by looking to the end of the game to see which is the winning move.

ON THE MOVE

There are two main parts needed to do this (see the box-out on procedures in this and last month's issue). The simple part, which later forms the base case for the recursion used to choose the computer's move, looks at a given board position and decides whether or not the game is over. There are a number of ways in which this may happen, and for simplicity's sake they are each separated into different procedures.

The controlling one, GAMEOVER, returns a result of True (this is an AMOS reserved variable with a value of -1). This result can be read by the program that called GAMEOVER by looking at the value of Param. GAMEOVER itself looks like this:

```
Procedure GAMEOVER
Shared BOARD(),NOUGHT,CROSS
RESULT=False
FULL
If Param=True Then ↵
RESULT=True
WON[NOUGHT]
If Param=True Then ↵
RESULT=True
WON[CROSS]
If Param=True Then ↵
RESULT=True
End Proc[RESULT]
```

Notice that the procedure must have access to the game board, and the values for noughts and crosses, so the corresponding variables must be shared. RESULT is a variable used to hold the result of the GAMEOVER procedure before it is returned.

Two further procedures are called by GAMEOVER. The first is FULL, which returns a value of True in Param if the game board is full. If this is the case, then the game must be over and RESULT can be set to True. The second procedure is WON. This takes a single parameter: the type of piece in which we are interested. If it is passed NOUGHT and the game has been won by the noughts, then it will return True, False otherwise. Similarly, if it is passed CROSS as a parameter and the game has been won by the crosses, then it will return True, False otherwise.

Here is the FULL procedure:

```
Procedure FULL
Shared BOARD(),EMPTY
RESULT=True
For X=1 To 3
   For Y=1 To 3
         If BOARD(X,Y)=EMPTY
```

AND MORE ON PROCEDURES...

Procedures have more up their sleeves than I let on last month.

You may remember the mention of local variables, shared variables and parameters. Let's recap: a local variable is one that is only used inside a procedure. After the procedure has finished, the value held in the local variable will be forgotten. No modifications made to it within the procedure can have any effect on the parts of the program external to the procedure. A local variable may have the same name as a variable external to the procedure, but they will be unconnected. Altering one will not alter the other. All variables used in a procedure are local unless declared by the programmer to be otherwise.

Shared variables are the exception. If a variable within a procedure is declared as shared, then it is exactly the same as the variable external to the procedure with the same name. Any modifications to one will alter the value of the other. In the noughts and crosses example, the board array is declared as shared for all of the procedures, since clearly each procedure needs to be working with the same game board.

Parameters are variables 'passed' to a procedure by the external program. In AMOS they are enclosed in square brackets after the procedure name, both in its definition and whenever it is called. The variables in the call – those passed to the procedure – need not have the same names as those inside the procedure definition. The parameters within the procedure act like local variables. Modifying them will not alter the external variables which were passed to the procedure at the call. The difference is that their values are initially set to those of the external variables used in the call whenever the procedure is called.

The best way to learn about the different types of variables available to procedures is to experiment. Write a few procedures – try a few experiments with variable values and include a few print statements so you can see what is going on. You'll soon get the hang of it.

There's a further kind of variable usable by procedures – a result or return value. Supposing you wanted to write a procedure which multiplied three numbers. These could be passed as three parameters to the procedure. But if the variable holding the result of the calculation is local to the procedure, how can the external program ever know what the result is? One answer is to share the result variable between the procedure and the rest of the program. Another, more elegant solution, is to return the result to the main program. A procedure can only return one value: it is done in AMOS by placing the variable to be returned in square brackets following the End Proc statement.

The value can then be accessed by the main program via a special variable called Param – this always holds the result returned from the last procedure called. Type in this short example to get a feel for it:

```
A=1
B=2
C=3
MULT[A,B,C]
Print "Answer=";Param
A=7
B=5
C=12
MULT[A,B,C]
Print "Answer=";Param
Stop
Procedure[X,Y,Z]
RESULT=X*Y*Z
End Proc[RESULT]
```

```
Then RESULT=False
    Next Y
Next X
End Proc[RESULT]
```

FULL assumes that the board is already full, and so sets RESULT to True. It then searches through each of the positions in turn. As soon as it finds a blank one (a position whose value is equal to EMPTY) it sets RESULT to False, since the board is clearly not false. Once each position has been checked, FULL ends, returning the value held in RESULT.

The procedure WON looks as follows:

```
Procedure WON[TURN]
Shared BOARD()
RESULT=False
HORIZLINE[TURN]
If Param=True Then ↵
RESULT=True
VERTLINE[TURN]
If Param=True Then ↵
RESULT=True
DIAGLINE[TURN]
If Param=True Then ↵
RESULT=True
End Proc[RESULT]
```

As you can see, WON does little more than rely on another set of procedures: HORIZLINE, VERTLINE and DIAGLINE. Like WON, these are passed a type of piece as a parameter, and then go on to decide whether this particular piece has won the game.

HORIZLINE decides whether or not the piece whose value is held in TURN has won by making a horizontal line of three. It does this as follows:

```
Procedure HORIZLINE[TURN]
Shared BOARD()
RESULT=False
If((BOARD(1,1)=TURN and ↵
BOARD(2,1)=TURN and ↵
BOARD(3,1)=TURN) ↵
or(BOARD(1,2)=TURN and ↵
BOARD(2,2)=TURN and ↵
BOARD(3,2)=TURN) ↵
or(BOARD(1,3)=TURN and ↵
BOARD(2,3)=TURN and ↵
BOARD(3,3)=TURN)) Then ↵
RESULT=True
End Proc[RESULT]
```

That's fairly straightforward, as is the procedure to see whether the piece in TURN has won on a vertical line:

```
Procedure VERTLINE[TURN]
Shared BOARD()
RESULT=False
If((BOARD(1,1)=TURN and ↵
BOARD(1,2)=TURN and ↵
BOARD(1,3)=TURN) ↵
or(BOARD(2,1)=TURN and ↵
BOARD(2,2)=TURN and ↵
BOARD(2,3)=TURN) ↵
or(BOARD(3,1)=TURN and ↵
BOARD(3,2)=TURN and ↵
BOARD(3,3)=TURN)) Then ↵
RESULT=Turn
End Proc[RESULT]
```

Similarly, the procedure to check for wins along a diagonal looks like this:

```
Procedure DIAGLINE[TURN]
Shared BOARD()
RESULT=False
If((BOARD(1,1)=TURN and ↵
BOARD(2,2)=TURN and ↵
BOARD(3,3)=TURN) ↵
or(BOARD(3,1)=TURN and ↵
BOARD(2,2)=TURN and ↵
BOARD(1,3)=TURN)) Then ↵
RESULT=True
End Proc[RESULT]
```

The three procedures above could all have been incorporated into the WON procedure, but that would have made things messy. As it is, it's much easier to see what's going on by splitting different parts of the program up into different sections.

The prcoedure which makes use of all of the above is known as a 'static evaluator'. It looks at the board from a particular player's point of view and returns a value of +1 if that player has won, -1 if the player has lost, or 0 if neither player has won. The code for it is as follows:

```
Procedure STATIC[TURN]
Shared BOARD()
WON[TURN]
If Param=True
   RESULT=1
Else
   WON[-TURN]
   If Param=True
      RESULT=-1
   Else
      RESULT=0
   End If
End If
End Proc[RESULT]
```

STATIC returns a result depending on the type of piece passed to it in the parameter TURN. It first calls WON to see if TURN has won, and if so it sets RESULT to 1. If not, it calls WON with the negative of TURN – that is the opponent of the player in question – and if *this* player has won then RESULT is set to -1. Otherwise RESULT is set to 0.

All of the above forms the base case of the recursion necessary to generate the computer's move. The recursion steps through every possible move that the computer and the player can make. It only stops when the game is over, which it can discover by calling GAMEOVER.

Next month I'll go into the recursive part of the move generator. It's a little complicated, so have a look at the box to the right to acquaint yourself with the basic ideas. AS

RECURSION

Recursion is one of the most powerful of programming techniques. Initially it can be a little difficult to follow, but once mastered it proves its worth.

Something that is recursive includes itself as part of its definition. In computer programs, it is usually procedures which are recursive. The procedure definition will include a procedure call to itself. Look at the following:

```
Procedure FACTORIAL[N]
FACTORIAL[N-1]
N=N*Param
End Proc[N]
```

It computes the factorial of a number. The factorial of a number N is obtained by multiplying all the numbers between 1 and N. In the example, this is done by multiplying N by the factorial of N-1, which achieves the same result. One slight problem with the above – it never stops. The procedure is infinitely recursive.

Because factorials only work for numbers of one or greater, there is no need to continue the recursion once the value of N is 1 or less. The procedure can be modified to:

```
Procedure FACTORIAL[N]
If N>1
   FACTORIAL[N-1]
   N=N*Param
End If
End Proc[N]
```

This checking for the value of N is looking for 'the base case'. If the base case holds (in this example, that N is 1), then no further recursion occurs, and an answer can be given immediately. If the base case is not satisfied, further recursion is called for.

Imagine the procedure Factorial called with a parameter of 3. The If statement will be true, since 3 is greater than 1, so Factorial will be called again with a parameter of 2. Again, the If statement will be true, so Factorial will be called with a value of 1.

Now the If statement is false, so the procedure ends. The value it returns is N, which at the moment is equal to 1. After the end of the procedure, control returns to the statement after the previous call to Factorial. The special variable Param has a value of 1, given by the result of the last call. This is multiplied by N, and the result assigned to N. In this case, N has a value of 2 (remember that N, being a local variable, has a different value in this invocation of the procedure from those Ns used in other calls of the same procedure), and the result is 2.

This result is then returned at the end of the procedure. Control again passes to the statement following the call to Factorial. Now Param has a value of 2. It is multiplied by N, which equals 3 in this particular call to the procedure (this is the value with which the procedure was originally called). The result, 6, is then returned by the procedure.

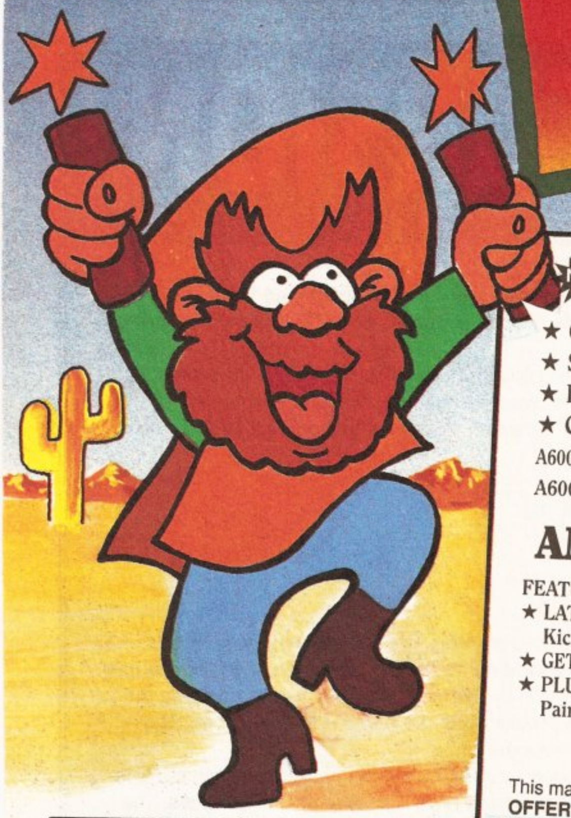
Control then passes to the main program, since the recursion has ceased.

The main program would look something like:

```
FACTORIAL[3]
Print Param
Stop
```

You can see that a recursive procedure consists of two parts: a base case, which yields a definite result; and a recursive, general case, which can only yield a result dependent on further calls to the procedure. Bear in mind that any local variables in the procedure (including the procedure's parameters) will have different values in each recursive call to the procedure, even though they share the same names.

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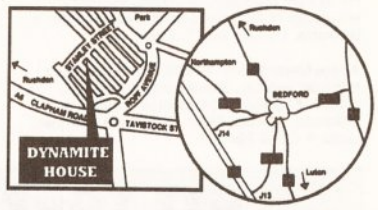
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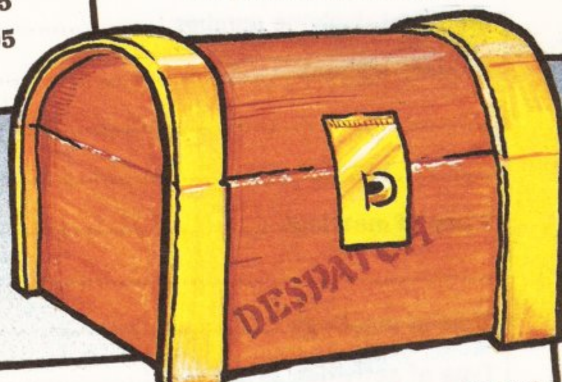
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Imagine Users' Group Encourages the use of Imagine and other ray tracing packages. Affiliated to US group. Object library. Membership free. Contact Brian Walker, 16 Cambridge Road, Newton Cambridge CB2 5PL.

Jam Bit Tech 24-hr hotline, PD library For info contact J Maron, Greycourt, Greycourt Cl, Idle, Bradford, BD10 8QH W Yorks ☎ 0274 611111 Ex 248

Kent Youth Computer Group Computer fair visits, programming, video and DTP work, monthly newsletter. 30p entry/evening. Meetings Sundays 6.30 - 9pm at the D Bowen Youth centre, Kingsnorth Road, Ashford, Kent TN23 2LY. ☎ 0233 629804

Maritime Amiga Club Maritime computing, interact with seafarers ashore on Amigas. Contact CDR K Osei, GN Ships Refit Office, 51 Rue de la Bretonniere, 50105 Cherbourg, France. ☎ 33 33225447

Northern Ireland Amiga User Newsletter, free PD library. Send SAE for further info. £5 annual membership. Contact: S Hamer, 98 Crebilly Rd, Ballymena, Co Antrim BT42 4DS

Norwich Masked Heros SAE for info. Free membership. Contact Zorro, 278 Aylsham Rd, Norwich, Norfolk NR32RG ☎ 0603 409899

Pennine Amiga Club 26 Spencer Street, Keighley, West Yorkshire BD21 2BU. Free membership, free advice and a newsletter. Contact Neville Armstrong ☎ 0535 609263.

Public Domain Exchange Demos, music, utilities, aimation Annual fee £8 Contact D McLeish, 26 Taunton Ave, Leigh, Lancs WN7 5PT

Public Domain User Group Swaps PD, provides advice. SAE to 12 Oxford Rd, Guildford, Surrey GU1 3RP.

Red Led Amiga Club Swap games and utilities Contact N Hansell, 62 Wolsey Dr, Walton on Thames, Surrey KT12 3BA

Rye Computer Club Swap/meet at the Rye Community Centre. For info contact Oliver Campion, 71 The Mint, Rye, E Sussex TN31 7DP ☎ 0797 222876

Serious Amiga Users Membership £5, £1 admission. Contact J Kucak for more: ☎ 0706 290387. Fortnightly meetings 7.30-11 at the High Crompton Conservative Club.

Sherlock PD Quarterly disk mag, help and advice for beginners. 50p/disk. A Doyle, 44 Milton Street, Warrenpoint, Co Down N Ireland

Shropshire Amiga Link Advice, monthly disk mag, PD £15/year fee. Contact N Cockayne, 2 Dodmoor Grange, Randlay, Telford, Shropshire TF3 2AW ☎ 0952 591376

Slim Agnus 115 Brocks Drive, North Cheam, Sutton, Surrey SM3 9UW. Meet last Thursday of month. PD library, BBS, advice from Amiga experts. Contact Philip Worrel.

Software Exchange Service 13 Bournville Lane, Stirchley, Birmingham, West Midlands B30 2JY. Michael Pun ☎ 021-459 7576.

South 16 Bimonthly mag and disk, also PD library. Send SAE. £10/year. Contact Bruce, PO Box 16, Southampton SO9 7AU

South Wales Club Newsletter, PD, advice. Contact D Allen 53 West Ave, Trecenydd, Caerphilly, CF8 2SF

Warpdrive (friends of Amiga) Amiga help-line, PD library, bi-monthly disk mag, free drinks, competitions and infosheet. £15 a year. Contact B Scales 110 Burton Ave, Balby, Doncaster DN4 8BB ☎ 0302 859715

WCSPSA! Help available. PD disk of your choice and newsletter every month. PD at £1. Membership fee £25. For information contact A Jamieson ☎ 0749 677609

Wrexham District Computer Club PD, library, equipment loan. 10p to join, 50p to get in. Memorial Hall, Wrexham every Thursday, 7-10pm. Contact Paul Evans, 3 Ffordd Elfed, Rhosnesi, Wrexham, Clwyd LL12 7LU.

Your Amiga Club Helplines, PD, social evenings, classes, club mag. Fee: £12, family £15. Contact P Higgins ☎ 0424 892269. The Old Chapel, Church Rd, Catsfield Battle, Sussex TN33 9DP

GET YOURSELF LISTED

If you run a user group which isn't listed on this page, fill in the form below for your free entry. Send it to *Amiga Shopper* User Groups List, 30 Monmouth Street, Bath BA1 2BW. We reserve the right to refuse entries.

AS16

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Contact name ....

Contact telephone number ....

Contact address ....

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Place of meetings ....

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Membership fee ....

AMIGA PERIPHERALS

GVP
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Silica Systems are pleased to present the GVP range of peripherals. GVP are the world's largest third party manufacturer of peripherals for the Amiga range and have a reputation for high specification, quality products. The company was founded only four years ago by a man who knows about the Amiga, Commodore's ex-Vice President of Technology. He, along with a team of Amiga experts including other ex-Commodore staff, understand the add-on requirements of Amiga owners better than anyone. Not only do GVP provide peripherals that Amiga owners want, they also offer peace of mind, with a 2 year warranty on the products they manufacture. So, if you are looking for the very best in peripherals for your Amiga computer, look no further than GVP.

GVP's HD8+ hard drive and A530 hard drive with 40MHz accelerator, represent the highest quality Amiga 500 peripherals, at very affordable prices. Each incorporates a Quantum disk drive, RAM expansion capability, custom VLSI chip and FAAASTROM SCSI driver, for unbeatable performance.

The HD8+ hard drive offers up to 8Mb of standard internal Fast RAM expansion and the A530 Combo, up to 8Mb of 32-bit wide fast RAM expansion. Both feature a SCSI controller, which supports up to 6 additional devices, and an Autoboot/Game cut-off switch. Both are available in 52, 120 and 240Mb hard drive versions.

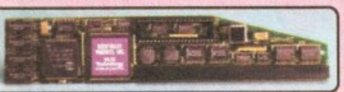
In addition, the A530 Combo zooms the Amiga forward with an 030 accelerator, running at a blistering 40MHz. This enables your Amiga 500 to run at an incredible 12.1 MIPS, faster than an Amiga 3000! No other product in the world combines all the features found in the A530 Combo! A plug-in PC emulator option, shown below, is available for both the HD8+ and A530 Combo.



	HD8+	A530
HARD DRIVE		
QUANTUM SCSI HARD DRIVE 52, 120 & 240Mb VERSIONS	●	●
ULTRA FAST 11ms ACCESS	●	●
TRANSFER RATE UP TO 2,100K/sec* (*THE RATE OF THE 240Mb HD)	●	●
ACCELERATOR		
40MHz 68030EC CPU		●
OPTIONAL 68882 MATHS CO-PROCESSOR		●
RUNS AT 12.1 MIPS (FASTER THAN AN A3000!)		●
HARDWARE SUPPORT TO MAP KICKSTART INTO 32-bit WIDE FAST RAM FOR FASTER OPERATION (LIKE CACHING THE OPERATING SYSTEM)		●
RAM BOARD		
UP TO 8MB OF 8 OR 9-bit FAST RAM (8 OR 9-bit WIDE SIMMS - 120ns OR QUICKER)	●	
UP TO 8Mb OF 32-bit WIDE FAST RAM (32-bit WIDE SIMMs - 60ns)		●
1Mb POPULATED		●
OTHER FEATURES		
HDD/ACCELERATOR 'CUT-OFF' SWITCH FOR 100% GAME COMPATIBILITY	●	●
SCSI CONTROLLER FOR UP TO 6 ADDITIONAL DEVICES	●	●
VLSI CUSTOM CHIP	●	●
FAAAST ROM SCSI DRIVER	●	●
IDENTICAL COLOUR & STYLING TO THE A500	●	●
BUILT-IN VENTILATION FAN TO PREVENT THE UNIT FROM OVERHEATING	●	●
DEDICATED POWER SUPPLY	●	●
'MINI-SLOT' FOR FUTURE EXPANSIONS (E.G. PC EMULATOR)	●	●
REMOVABLE MEDIA SUPPORT	●	●
DIRECT MEMORY ACCESS (DMA) STYLE FOR ULTIMATE PERFORMANCE	●	●
EASY-TO-USE SOFTWARE	●	●
2 YEAR WARRANTY	●	●


HD8+

PC EMULATOR
PLUG-IN OPTION FOR HD8+ & A530



- 16MHz 80286 processor
- 287 Maths Co-Processor socket
- 512K of PC RAM plus the use of Amiga RAM
- Supports Hercules, CGA, EGA/VGA (monochrome) and T3100 video modes
- Runs MS-DOS (3.2 and upwards) plus thousands of other PC programs

This powerful 286 emulator module simply plugs into the "mini-slot" of the GVP HD8+ or A530 (without invalidating the warranty). It has full access to the Amiga's resources and allows you to run PC and Amiga programs at the same time, giving you two computers in one.

£249 Ref: EMU 0500

WHAT THE PRESS SAY:

'Superb build, excellent aesthetics and blinding speed make this the best A500 hard drive' ... AMIGA SHOPPER

'GVP claims this is the fastest hard drive in the world and none of our tests could prove that wrong'. AMIGA SHOPPER

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PLUG IN HARD DRIVES & ACCELERATORS

PRICES FROM:

£379

MODEL	52Mb HD	120Mb HD	240Mb HD
HARD DRIVE HD8+	£379 Ref: HAR 0852	£499 Ref: HAR 0920	£779 Ref: HAR 0942
A530 COMBO HARD DRIVE & ACCELERATOR	£749 Ref: HAR 0962	£869 Ref: HAR 0974	£1149 Ref: HAR 0986

FOR ALL AMIGAS

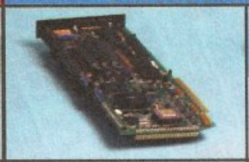


SOUND SAMPLER
- *8-bit stereo sampler*
- *Plugs into parallel port*
- *MIDI support for song input*
- *Extensive editing features*

For the semi-professional and audio hobbyist a high quality 8-bit stereo sound sampler that connects into the parallel port on any Amiga 500, 600, 1500, 2000 or 3000 computer. Combined with one of the fastest, most powerful and easy-to-use sound and music editing programs available. Includes 4-track soundtracker file compatible sequencer.

MUS 2500 **£59.95**

AMIGA 1500 + 2000 + 3000 PRODUCTS



ACCELERATORS
- *68030EC/68030EC/68030 processor*
- *25/40/50MHz clock speeds*
- *68882 Maths co-processor*
- *Expands to 13/16/16Mb 32-bit RAM*
- *32-bit SCSI controller on board*

Fast 68030/68030EC accelerators with memory upgrade and SCSI interface boards. Each comes complete with a 68882 maths co-processor and RAM upgrade as standard. Kit available, to mount 1" Hard Drive on any G-Force 030 Board, GVA 4251, £39.95

25MHz/1Mb	Ref: UPG 0110	£599
40MHz/4Mb	Ref: UPG 0430	£999
50MHz/4Mb	Ref: UPG 0533	£1399



HARD CARDS
- *Factory installed Hard Drives*
- *52, 120, 240 & 420Mb options*
- *On-board 8Mb memory sockets*
- *Add up to 6 SCSI devices*
- *Easy to install SIMMS*

The Impact II HC8 hard cards are the equivalent of the HD8+ hard drive, but for the 1500 and 2000 models. Not only are they some of the fastest hard drives available, but they also incorporate an unpopulated 8Mb RAM expansion board.

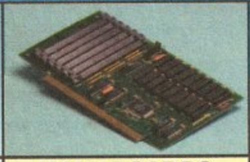
52Mb	Ref: HAR 1352	£299
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- *Broadcast quality genlock*
- *Now with RGB splitter*

Impact Vision 24 is the latest 24-bit Professional Video Adaptor. It features 16 million colours on screen at once, built-in genlock, flicker fixer, frame buffer, frame grabber and digital keyer. Supplied with Caligari-IV24 3D modelling and rendering software, Scala IV24 video titling software, plus Macro Paint 24-bit paint package. A1500/2000 requires additional adaptor, GVA 5224, £49.95

IV-24 - VIU SPLITTER	Ref: VID 7024	£1699
IV-24 - VIU TRANSCODER	Ref: VID 7124	£2099



RAM BOARDS
- *Up to 8Mb of FAST RAM*
- *Upgrade in 2Mb increments*
- *Supports industry standard RAM chips*
- *Diagnostic software included*
- *Fully auto-configuring*

The RAM-8 offers an easy way to upgrade your 1500 or 2000 in 2Mb increments up to 8Mb. The RAM 8 is fully auto-configuring and is supplied with peace-of-mind diagnostic software. 6Mb configuration supported for bridgeboard owners

0Mb populated	RAM 2800	£99
2Mb populated	RAM 2802	£169



REMOVABLE MEDIA
- *Syquest 44 or 88Mb removable media*
- *20ms access time*
- *GVP HC8 Controller option extra*
- *External case available for A500/3000*

GVP offer Syquest drives with or without their HC8 controller. They are available in 44Mb and 88Mb capacities and have a 20ms access time. Each drive comes with a removable cartridge.

44Mb (Bare Drive)	Ref: HAR 1554	£449
44Mb (+HC8)	Ref: HAR 1568	£549
88Mb (Bare Drive)	Ref: HAR 1678	£599
88Mb (+HC8)	Ref: HAR 1691	£699

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Before you decide when to buy your new Amiga products, we suggest you think very carefully about WHERE you buy them. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals and software, or help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers' requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest FREE literature and begin to experience the "Silica Systems Service".

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Next Day - Anywhere in the UK mainland

FREE STARTER KIT
Worth £29.38 - With every Citizen printer (excluding inkjet) from Silica.

2 YEAR WARRANTY
Silica offer a 2 year warranty (including the dot matrix printer head) with every Citizen printer.

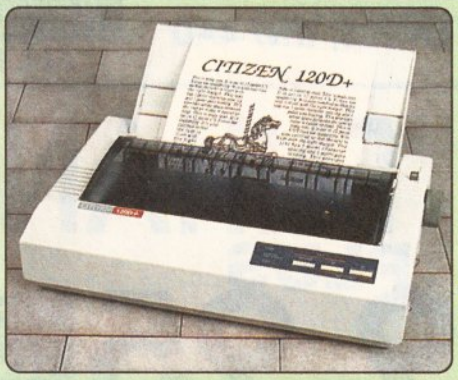
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LOW PRICE 9 PIN PRINTER



144 CPS — 80 COLUMN

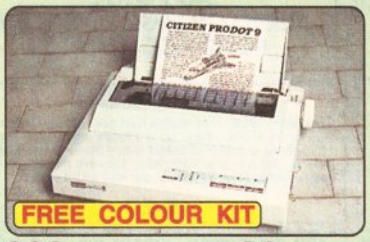
- *Citizen 120D+ - 9 pin - 80 column*
- *144cps Draft, 30cps NLQ*
- *4K Printer Buffer + 2 Fonts*
- *Parallel or Serial Interface*
- *Graphics Resolution: 240 x 240dpi*
- *Epson and IBM Emulation*
- *Pull tractor & bottom feed*
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RRP £199
SILICA STARTER KIT £25
TOTAL VALUE: £224
SAVING: £109
SILICA PRICE: £115

£115
+VAT= £135.13 ref: PRI 2120

The Citizen 120D printer comes supplied with a parallel interface as standard. If you require a serial interface instead, please state ref: PRI 2125 when placing your order with Silica.

9 PIN PRINTERS



300 CPS — 80 COLUMN

- *Citizen Prodot 9 - 9 pin - 80 column*
- *300cps Draft, 60cps NLQ*
- *8K Printer Buffer + 3 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 240 x 240dpi*
- *Epson and IBM Emulation*
- *FREE Colour Kit*
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RRP £189
COLOUR KIT £41
SILICA STARTER KIT £25
TOTAL VALUE: £255
SAVING: £66
SILICA PRICE: £189

£189
+VAT= £222.08 ref: PRI 2319



192 CPS — 80 COLUMN

- *Citizen Swift 9 - 9 pin - 80 column*
- *192cps Draft, 48cps NLQ*
- *8K Printer Buffer + 3 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 240 x 240dpi*
- *Epson and IBM Emulation*
- *FREE Colour Kit*
- *FREE Silica Printer Starter Kit*

RRP £239
COLOUR KIT £38
SILICA STARTER KIT £25
TOTAL VALUE: £302
SAVING: £113
SILICA PRICE: £189

£189
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192 CPS — 136 COLUMN

- *Citizen Swift 9x - 9 pin - 136 column*
- *192cps Draft, 48cps NLQ*
- *8K Printer Buffer + 3 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 240 x 240dpi*
- *Epson and IBM Emulation*
- *Colour Option Available*
- *FREE Silica Printer Starter Kit*

RRP £329
SILICA STARTER KIT £25
TOTAL VALUE: £354
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SILICA PRICE: £249

£249
+VAT= £292.58 ref: PRI 2309

24 PIN PRINTER



PRINTER + SOFTWARE + COLOUR

- *Citizen Swift 24e - 24 pin - 80 column*
- *216cps Draft, 72cps LQ*
- *8K Printer Buffer + 6 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 360 x 360dpi*
- *Epson, IBM & NEC P6 Emulation*
- *FREE Colour Kit*
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- *FREE Lotus AMI 1.2 Word Processor and DTP package*
- *FREE Adobe Type Manager V1.15*

Lotus + Adobe software is for PC only on 3½" disk

RRP £369
COLOUR KIT £38
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LOTUS AMI 1.2 WP/DTP PACKAGE £95
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TOTAL VALUE: £606
SAVING: £337
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£269
+VAT= £316.08 ref: PRI 2544

24 PIN PRINTERS

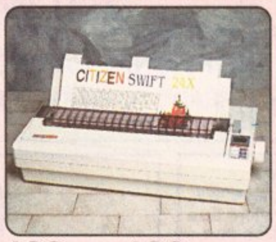


192 CPS — 80 COLUMN

- *Citizen 224 - 24 pin - 80 column*
- *192cps Draft, 64cps LQ*
- *8K Printer Buffer + 4 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 360 x 360dpi*
- *Epson and IBM Emulation*
- *FREE Colour Kit*
- *FREE Silica Printer Starter Kit*

RRP £269
COLOUR KIT £38
SILICA STARTER KIT £25
TOTAL VALUE: £332
SAVING: £133
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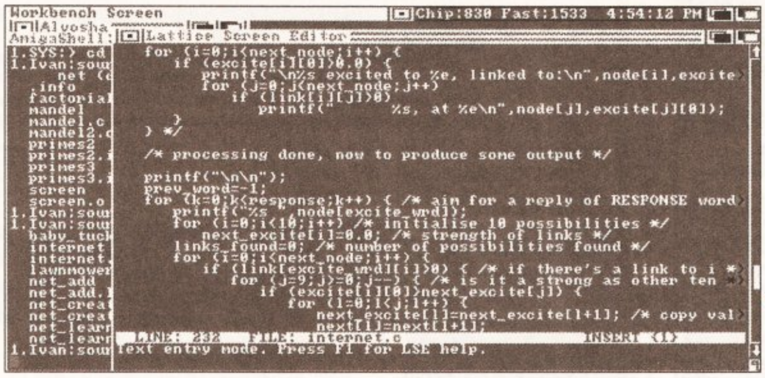
10 TOP TIPS – Choosing a programming language

Cliff Ramshaw tells you the ten essentials to look out for when making a start in programming

Computer programming is something that just about every Amiga owner decides to try at some point. It's the best method there is for getting to know your machine, learning how things tick, and gaining a better understanding of commercially written programs, which can only pay off when you come to use them.

Aside from all that, programming is also a lot of fun. And who knows, perhaps you'll find you have enough of a talent to make some money out of it?

Deciding where to begin with programming on the Amiga can be a confusing business, simply because there are so many languages and packages available for it. Here are ten points to mull over before making the plunge...



***SAS/Lattice C* is a great favourite amongst professional developers. It's a powerful language which comes with many useful programming tools**

❶ High and low-level – Languages are often placed into one of these two categories. If programming is likened to joining functional blocks together, then a high-level language consists of large, complex blocks – only a few need be joined to create a sophisticated program – whereas a low-level language has lots of small, simple blocks, several of which must be joined to make the equivalent of a block in a high-level language.

While high-level languages are easy to use and better for expressing complex ideas, low-level languages are usually faster and give the programmer more flexibility – they allow more direct control over the machine's hardware.

❷ Compilers and interpreters – These are the two different methods by which programming languages are translated into a form understandable by the computer – known as machine code. A compiler will translate a program wholesale, taking it in as a text file and producing something called an object file. This then has to go through a process known as linking before the final program is created. This will run completely independently of the compiler or the original text file, and it will generally run pretty fast. If a change is to be made to the program, it must be made to the original text file, which then has to be re-compiled and re-linked. Modifying programs like this can be a laborious process.

An interpreter translates programs line by line, as they are actually running. This translation occurs every time the program is run, and if one part of the program is used several times, then it must be translated each time. The result is that interpreted programs are relatively slow, but making alterations to them is easy because nothing further need be done beyond altering the program's text file.

❸ Absolute beginners – If you have no programming experience whatsoever, you would be well advised to go for an interpreted language. You are bound to make mistakes – everyone does – and the development cycle of a compiler is almost certainly guaranteed to infuriate. It's best to steer clear of low-level languages – you really need to know what you are doing to use one of these. The best beginner's language is Basic. It was designed to teach people to program, and while it doesn't have all of the features of a high level language (nor some of the complicated concepts behind them) it is sufficiently more powerful than a low-level language to enable you to produce good results in an easy to understand and read form.

❹ Graphics and sound – Access to the Amiga's graphics and sound facilities can be obtained through a set of 'libraries'. These are pre-written programs which handle all the messy business of dealing with the Amiga's hardware. The disadvantage is that they can be quite complex to get to grips with. An alternative is to buy AMOS, a variant of Basic that provides extremely powerful and easy to use facilities for graphics and sound.

❺ Speed – If you feel the need for speed, then you really ought to consider a compiled language, or even an assembler. Interpreters simply can't cut the mustard when it comes to speed-intensive applications.

❻ Games – It's possible to write games in just about any language, but if you want to produce a game of commercial quality with fast moving graphics, there is only one choice – assembler.

Assembler is a low-level language, the most basic possible. It is also the fastest and most memory efficient. It is translated in much the same way as a compiled language, although there is a direct correspondence between each assembler instruction and each machine code instruction that the computer understands. The only difference is that the instructions are expressed in words instead of numbers. The disadvantage of assembly language is that it is difficult to learn.

❼ Serious development – Commercial applications are usually written in C – a compiled language which combines the best of both high and low-level languages. C is so popular on the Amiga because it was used to write the operating system. Interfacing to it is therefore easiest with C. Alternatives are Pascal and Modula-2.

❽ Academia – If you are about to embark on an Open University or college programming course, you'll almost certainly come into contact with Pascal. It was designed specifically for this purpose, and is still popular amongst lecturers. It has grown more powerful over the years, and is now a serious competitor to C in the commercial stakes, too.

❾ Includes – If you get a compiler from the public domain, you will be missing the official Commodore include files. These contain segments of code needed for easy access to the Amiga's library functions. They can be obtained for £25 from Commodore Business Machines, Commodore-Amiga Technical Support, Bradbourn Drive, Tilbrook, Milton Keynes MK4 8AT.

❿ Weird and wonderful – There are many more languages other than the ones mentioned so far. They are available from the public domain, and present great opportunities for experimentation. Languages such as Lisp and Prolog can be used for artificial intelligence; Smalltalk for learning about object-oriented programming. You'll need extra books to use these, since their documentation assumes knowledge of the language in question, but they're a good way of realising just how diverse languages can be. AS

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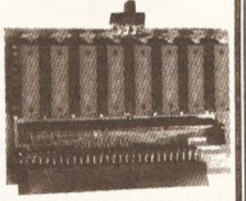
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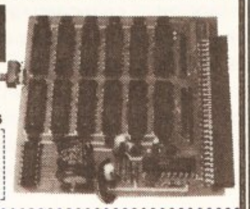
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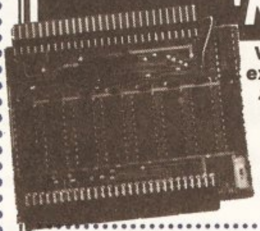
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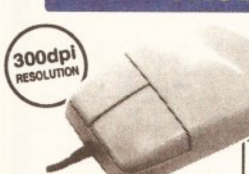


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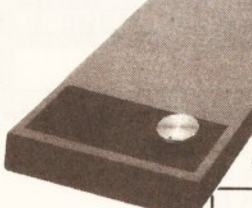


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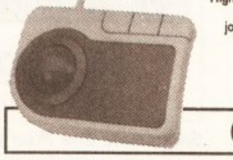
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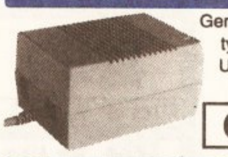
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Have a break, have a Hit Kit

More sequencing help as Paul Overaa looks at some current offerings from Gajits Music Software

Last month I talked about how *SuperJAM* can simplify the creation of song arrangements. I thought this month that I would continue with this theme and look at another approach which simplifies the construction of a song, namely the use of pre-written blocks of music. Gajits Music Software's *Hit Kit* offering is based on this method and since it is aimed at *Sequencer One* and *Sequencer One Plus* users I thought that it would be useful to start with some details of the sequencers themselves...

Gajit's MIDI sequencer, *Sequencer One*, has established a large user base which includes not just Amiga but a great many Atari ST users (in itself no mean achievement when you consider the scale of the ST music software competition).

Why has *Sequencer One* done so well? It's because Gajits, instead of trying to offer an all-singing all-dancing package, set out to produce a sequencer which offered the user just the basic facilities needed by a musician.

What Gajits left behind of course was the complex, and often rarely used, things which intimidate many users (and the 400 page manuals that take forever and a day to understand).

In short Gajits produced a sequencer which was ideal for beginners and ideal for any applications where the sophistication of the heavyweight sequencers was not needed. It also left behind the heavyweight prices and in fact last year an *Amiga Format* coverdisk offer placed *Sequencer One* in the hands of almost anyone who wanted it. Since this time *Sequencer One* has of course moved on and an upgraded version, *Sequencer One Plus*, has been introduced.

SEQUENCER ONE

AN OVERVIEW

Sequencer One provides the usual types of loop mode recording, overdub and block transfer operations.

All the normal forms of sequence editing facilities are provided but as well as the common or garden quantization and transposition type options there are some additional goodies thrown in, including controller re-mapping and range controlled MIDI event stripping and thinning functions.

The program works with both MIDI gear and internal sound samples and as the sequencer loads the user gets the chance to assign memory usage. If, for example, it was known that 120K of chip memory would be needed for holding sound samples then you'd need to ensure that *Sequencer One* left a sufficient amount of chip memory free!

SCREEN DISPLAYS

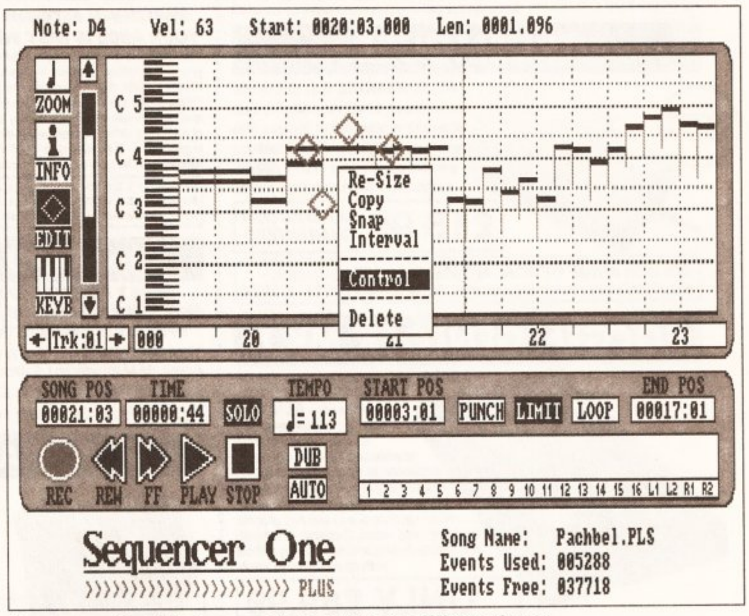
Three main screen displays are available with the original program – the track screen, the step editor screen and the bar editor screen.

Like most sequencers, the main controls are based on a set of record, play, fast forward, rewind, stop type tape-deck gadgets. These, together with the usual array of position counters, channel activity indicators and so forth are present on all three of the *Sequencer One* program screens.

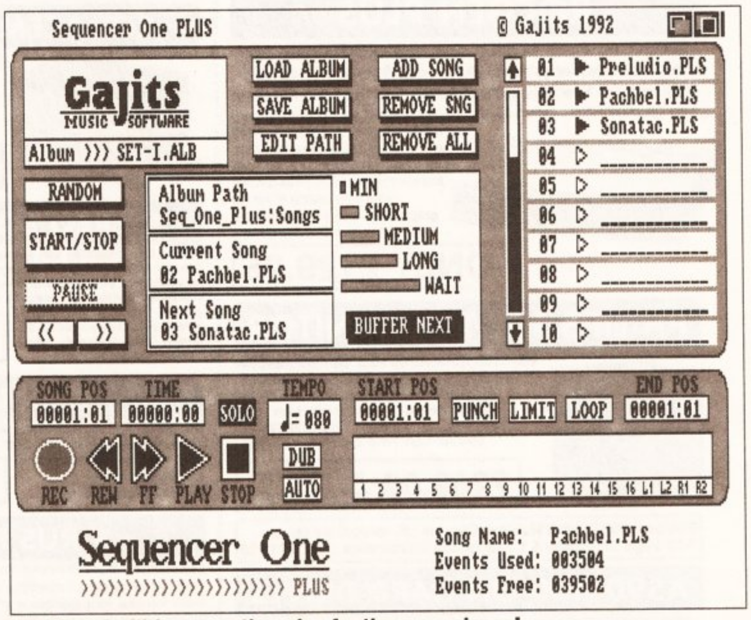
The track screen consists of two scrollable list areas: on the left there is a display containing information about the sequencer's 32 tracks and these hold track number, track name, mute on/off status, and channel info.

On the right is a list of user definable 'song positions'. The user can set these to any position in the song and assign a name to that position. Recording and re-channelling output (to either MIDI or the internal sound chips) quite simply could not have been made any easier.

The step editor provides a piano



***Sequencer One Plus*'s new Diamond Drag editing scheme**



Juke Box facilities – another plus for the new release!

roll type display of a track, showing which notes are played and where they start and end. This editor is used for editing (and deleting) individual notes or entering music in step time.

Three modes are associated with the step editor – delete mode, info mode and a step entry mode. In delete mode, notes disappear as you touch them, in info mode you can view and edit events, and in step entry mode you can enter notes manually in step time.

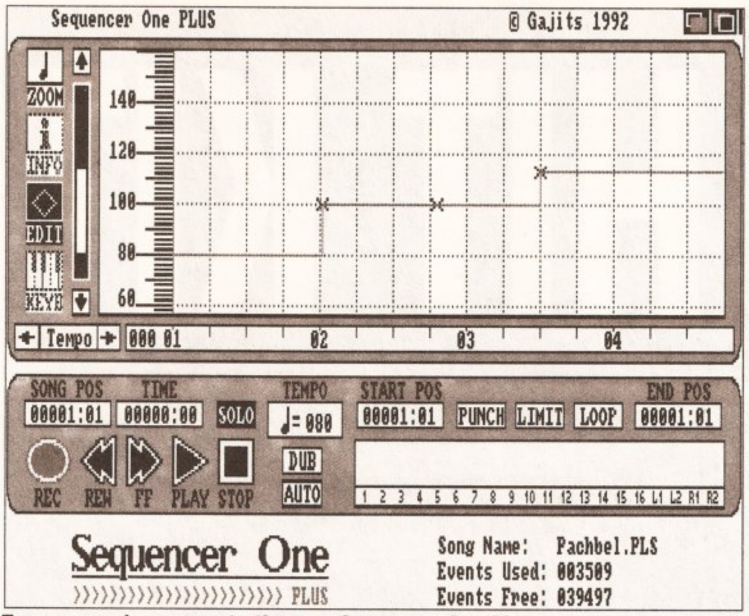
Event editing (providing of course you know what the various MIDI event values mean) is reasonably straightforward... click on the event and then when the information panel appears type in whatever new values are required.

The bar editor shows the arrangement of the song graphically, indicating for each track, which bars contain data. It's mainly used for viewing and creating arrangements and it is well suited for carrying out block operations.

The file menu lets you load/save files in both *Sequencer One* format and Standard MIDI File formats 0 and 1 which are the most commonly used MIDI file arrangements.

Format 0 incidentally is a single stream arrangement which is probably the most portable of all MIDI files types, format 1 is a multiple track storage scheme. One useful facility is that when *Sequencer One* loads a type 0 MIDI file it splits the file data up so that the data from each MIDI channel ends up in a separate track. Even when you are not porting your compositions to or from other sequencers this split effect allows the MIDI save/load operations to be used for separating multi-channel track data.

There's also a block menu which provides cut/copy/paste/delete type functions, and a track menu which is concerned with global operations carried out on a single track. It's from this latter menu that quantizing, stripping, thinning and note/timing/controller alteration is carried out. There's also a rather sneaky track info facility which, in addition to giving you some basic track statistics, lets you attach volume, patch (program change) and pan information to a track.



Tempo mapping comes to the new *Sequencer One Plus*

On the MIDI menu side the options of *Sequencer One* are,

> **"The Juke Box screen allows albums to be created or played."**

relative to many other sequencers, fairly basic. There is the nowadays indispensable Soft Thru option available plus internal/external clock choice and SSP (song position pointer) support.

A number of data filters are also provided so that note on/off, polyphonic and channel aftertouch, program change, pitchbend and controller information can be selectively passed or filtered.

In addition *Sequencer One* offers audible or user selectable MIDI-note/MIDI-channel metronome control, mouse click tempo setting, song notes (ie text notes to be associated with the song) and things like keyboard help. The big plus for many users however was being able to use the Amiga's internal sound chips either as an alternative to MIDI or in conjunction with it.

Using IFF sound samples and MIDI output together is a piece of cake and there are a lot of musicians who find many uses for the thousands of IFF sound samples which are nowadays available. *Sequencer One* then, clearly won many friends in the 'ease of use' department.

SEQUENCER ONE PLUS

This latest version of the software called *Sequencer One Plus*, adds a number of facilities which are not to be found in the original program. For a start two new screens, namely a Tempo Map screen and a Juke Box screen, have been added.

Tempo maps are graphs of tempo versus song position which allow you to define either gradual or sudden changes in the tempo (speed) of a piece of music as it is played.

The Juke Box screen allows 'albums' (song sets of up to 32 songs) to be created and played. CD style controls are provided and you can skip back and forth between songs, play in random order, pause, mute selections etc. You can also alter the delay between songs and, given sufficient memory, have the sequencer load the next song as the current one is playing.

A new track 'solo' button has been included so that individual tracks can be heard in isolation and 'punch in' facilities have also been added (this allows you to limit recording to a specific area of the sequence).

Many other operations including the quantizing, metronome, and event filtering options have been enhanced and there is even a special filter which solves the 'MIDI echo' problem found on some Yamaha synths. Changes to the Alter Notes options make it possible to scale or shift note lengths and to change all occurrences of a particular note to any other note (this now means that drum note remapping becomes quite easy). In addition to these Sysex recording facilities, a count-in box, and numerous other facilities have been added.

By far the most interesting changes however concern the Step Editor screen because here a new 'Diamond Drag' graphic editing scheme has been introduced. This offers a fast, audible, interactive note placement and editing scheme which allows you to listen to, add, move, stretch, snap (push a note on to the current step interval) or delete notes very easily.

EASE OF USE

When you select a note for editing a set of four 'drag diamonds' appear around it with note value, velocity, length and position data being displayed at the top of the screen. If, for example, you wish to move the note you just select the top diamond and then use the mouse to drag the note to where you want it! The Drag Diamond system works in conjunction with a mini-menu that drops down beneath the note to provide other facilities (including the conversion of notes to MIDI controller data) and the net result is an editing system that is both simple to use and effective.

continued overleaf

JARGON BUSTING • JARGON BUSTING

MIDI – Musical Instrument Digital Interface; the universal standard by which digital instruments such as synths and computers can communicate.

Loop – The section of sound that is designed to repeat as a key is held down – usually to create the illusion of a continuous sound.

Quantisation – In sampling this is the method of smoothing the overall level of sound as it progresses from one sound slice to the next.

Sequencer – A piece of software on a computer (or sometimes built on to a keyboard) which stores musical scores and transmits this information in real time via MIDI to synthesisers which will then play it.

Metronome – Timed electronic pulse... or a dwarf on the Parisian underground.

SHOPPING LIST

Sequencer One £19.95
(Latest version with new User Guide)

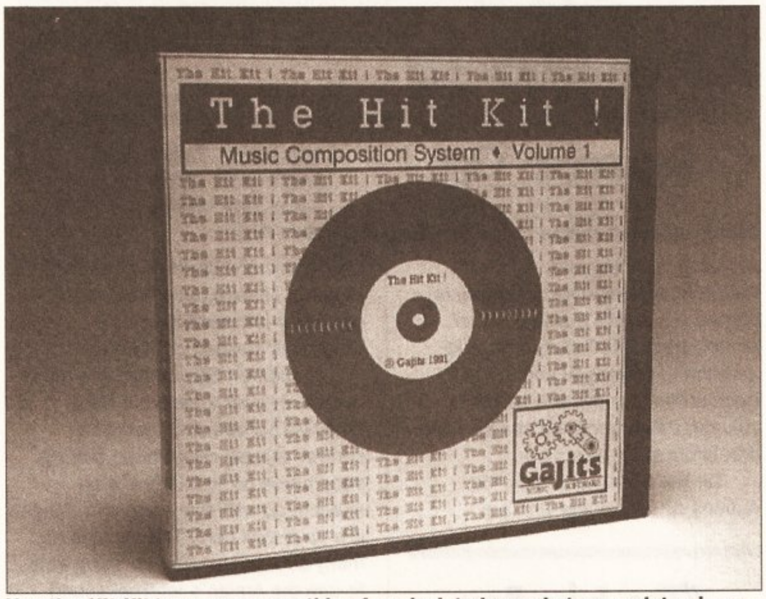
Sequencer One Plus £49.95
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40 Princes Street
Manchester M1 6DE
☎ 061-236-2515

THE HIT KIT

Create pro sounding compositions with the Hit Kit – Paul Overaa shows you how

The *Hit Kit* is Gajit's music composition system that I mentioned earlier. It can help to create professional sounding drum tracks, bass lines, arpeggio patterns, and even complete pieces of music and the good news is that, since this is all achieved from within the environment of *Sequencer One* or *Sequencer One Plus*, there is no need to learn how to use another program! I'll be showing you how you can used the *Hit Kit* to its best potential to show you how to achieve some great musical effects.



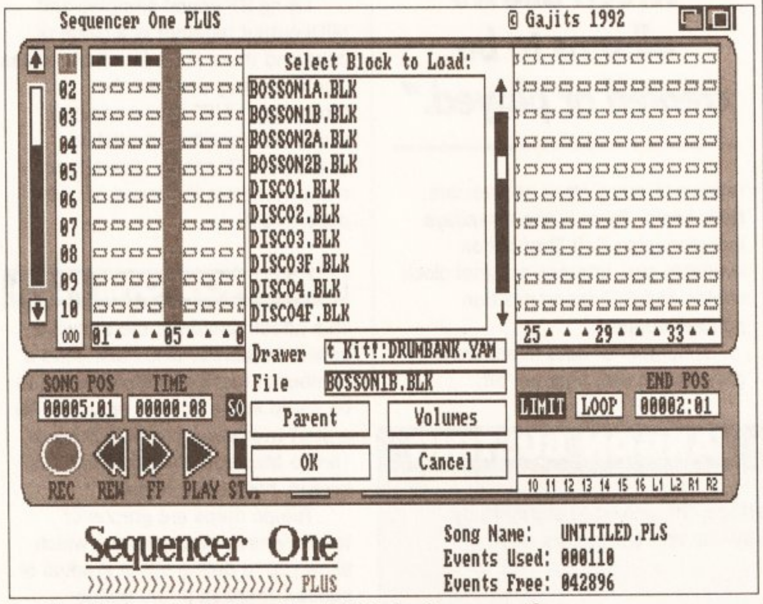
Use the *Hit Kit* to compose anything from isolated sounds to complete pieces of music, all from within *Sequencer One* or *Sequencer One Plus*

How does it work? Very simply, the *Hit Kit* consists of a disk which provides a large selection of 'musical building blocks' which can form the basis of a piece of music. All you have to do, is choose the blocks you want, and arrange them as required using the sequencers block

> **"There are seven style directories containing ballad, blues, disco, house, latin and others..."**

movement facilities.

As far as the *Hit Kit* is concerned each block has two characteristics associated with it: a 'style', and a 'type'. The style is just the style of music for which the block was written (eg disco). The type, is the suggested use of the block (eg a bass line pattern). These categories are intended to help you choose blocks for a particular situation but they're not rigid, so you are always free to experiment!



Loading blocks of data from the *Hit Kit* via *Sequencer One*

ON THE BEAT

The Drum Bank blocks contain drum patterns configured for a particular instrument. Each drum pattern is one bar in length and you will find three different Drum Bank directories on the *Hit Kit* disk.

Separate Roland and Yamaha format drum patterns are provided but if you are using a drum machine which uses some other drum-note <-> voice convention you can do one of two things: re-configure the drum machine itself to match either the Roland or the Yamaha drum kit or, if you have *Sequencer One Plus*, remap the drum parts.

Drum parts are also provided in a more specialised multi-track form needed for some applications, including internal sound based drum parts. When you load these blocks, you will find that each drum sound is located on a separate track of the sequencer. This means that you can easily set up the channel and patch number for the track to trigger the appropriate sound.

The multi-track format may also be useful if you have a MIDI instrument which does not have a separate drum channel or if you want to play around with the relative positions of certain drum parts (for instance, slightly shifting the snare drum part will alter the 'feel' of many drum patterns).

Most of the patterns are in four-four time (except for JAZWALTZ.BLK, which is in three-four time) and a fairly wide range of styles are available.

Despite the fact that there are a lot of files on the *Hit Kit* disk a block naming convention has been adopted which makes it quite easy to pick out the right types of patterns; for each style, the blocks are numbered from 1 upwards (eg JAZZ1.BLK, JAZZ2.BLK, and so on, for jazz style) and in general the pattern becomes more complicated as the number increases.

For a particular block number, there may even be several associated variations available – for example: the blocks JAZZ4A.BLK to JAZZ4F.BLK indicate a set of similar patterns, designed to be used together in the sequence in which they are lettered (that is: one bar of JAZZ4A.BLK, then one bar of JAZZ4B.BLK, and so on). This is only a suggested order and you may, of course, use them in a completely different order, just use one of the blocks repeatedly, or even mix them with the other styles!

FILL THE RHYTHM

Some of the patterns have 'fill in' blocks which they can be used in conjunction with. These can be inserted at suitable points in the rhythm, perhaps to separate a verse from a chorus, or simply to 'lift' the rhythm. Again a useful name convention helps to make things easier for the user – fill in blocks are suffixed with the letter "F" and so BALLAD2F.BLK, for example, is designed to be used as a fill in with BALLAD2.BLK.

PHRASE FINDER AND STYLE LOOPS

Phrase Finder blocks cover bass and drum parts, chords, arpeggios etc., and with the exception of the drum patterns all are eight bars in duration.

The phrases are contained in seven style directories covering ballad, blues, disco, house, latin (samba, bossa nova and so on),

JARGON BUSTING • JARGON BUSTING

Arpeggio – A chord made up of notes which are played in a rapid and normally upward succession.

Chord – Several notes played at once, usually to create a harmonically pleasing combination.

Bar – A unit of musical time with a fixed number of beats.

Dub – To add sound effects or music.

Sequencer – Software which stores musical scores and transmits this information in real time via MIDI to synthesisers which will then play it.

reggae and techno styles. Within each of these style directories, is a set of type directories, one for each type of block. Hence you can 'home in' on a particular block simply by using your sequencer's file selector box to step through the directories. The blocks provided in the drum type sub-directories, incidentally, have just been duplicated from the main

> **"The Hit Kit gives you instant library data, saving you time and hassle."**

drum bank data. These contain a selection of drum blocks which are suggested for use with that particular style although it is of course just as easy to pick your own from the main drum banks.

The Style Loops are a set of looping *Sequencer One* songs made up of all the phrase blocks (except the drums) for a particular style. They are not intended to be complete pieces of music and are there simply as a means of listening to the blocks which are available without having to load and play each in turn.

BLOCK OPERATIONS

To load a *Hit Kit* block into *Sequencer One* or *Sequencer One Plus*, you select the Load Block option from the Block menu bar heading and then use the file selector box to choose the block to load. The block will then be loaded into the clipboard. To check this, you can use the Block Info facility (again, this is under the Block menu heading). The Block Info box shows the number of events contained in the block just loaded, and also the track and position from which it was originally taken.

To use the block in the clipboard, you will need to Paste it into your music. For single-track blocks (all *Hit Kit* blocks except multi-track drum patterns), Paste will write the clipboard contents at the current song position on the current track. The current track and song position should therefore be set before using Paste. A multi-track block will be pasted at the current song position on all tracks (even though the block may not actually use all tracks). If, incidentally, the sequencer's overdub mode is on the clipboard it is merged with the existing data rather than replacing it. Since you can choose the number of repetitions for a Paste operation it's often possible, if you are taking the easy way out and just using a basic pattern, to paste in complete song sections with one paste operation.

AN EXAMPLE

The following example illustrates just how simple it is to create a rhythm track for an instrument using *Sequencer One* or *Sequencer One Plus* in conjunction with the *Hit Kit*...

Firstly, we'd choose a track to be the drum track, say track 1, and set it to the current record track (setting the MIDI channel as appropriate for the instrument). Then, with the *Hit Kit* disk in a drive, we would select the appropriate drum bank directory using the file selector box, identify a suitable drum pattern and click on OK – this will copy that block to the clipboard.

Having ensured that the song position is at 1:01, we select Paste from the Block menu, set the number of copies to say 4, and click on OK. Four copies of the block will be pasted onto track 1 at the start of the song (if in doubt you can always check this using the step editor screen which, in the case of the example, should then show a 4 bar pattern).

After a paste, the song position advances automatically to the end of the blocks, ready to paste again so after the above steps it would be reading 5:01.

We might then decide to load a variation of the first block and repeat the steps described above – if four bar pastes had been used in each case an eight bar rhythm pattern would have been created. This could then be copied and repeated as many times as required using the normal sequencer block copy operations.

Since you can do these types of operations with the drum parts, bass lines, chord progressions and other accompaniments, this building block approach makes life substantially easier for both the musician and the would-be musician. Don't forget also that once the blocks have been loaded into the sequencer there is nothing to stop you modifying the blocks in any way you that choose.

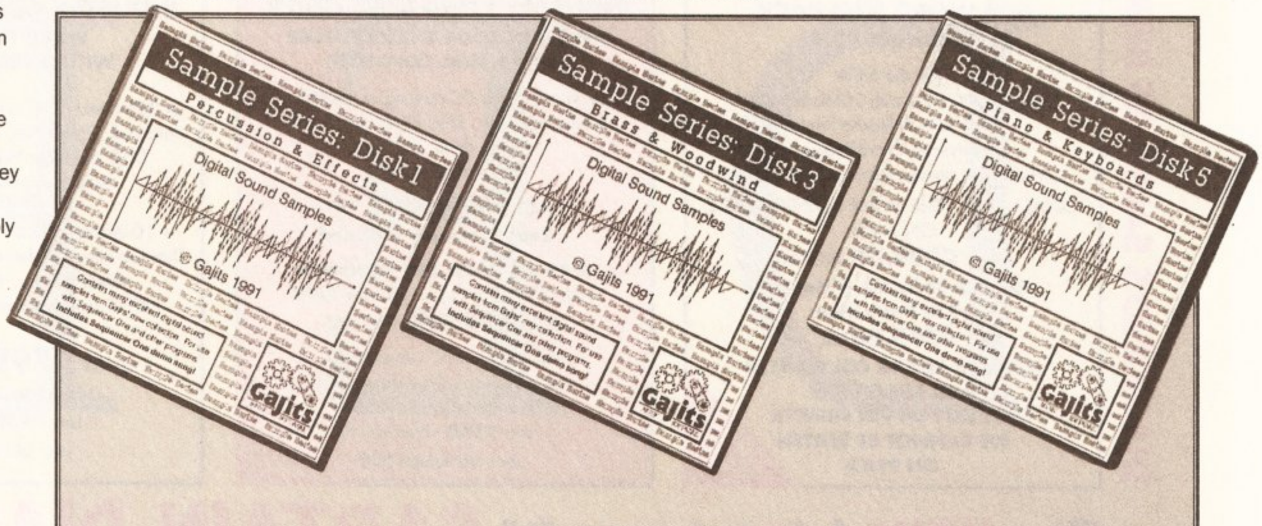
THE BOTTOM LINE

To be fair it would be perfectly possible to create your own libraries of sequence fragments for general use and, in the early days that is exactly what an awful lot of MIDI users, including myself, did. The disadvantage of the 'self made' approach, even if you have the musical expertise, is that it takes a lot of time to create such libraries. The *Hit Kit* gives you that library data instantaneously so it saves you both time and hassle! AS

SHOPPING LIST

The Hit Kit **£24.95**
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By:
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I-Mex House
40 Princes Street
Manchester M1 6DE
☎ 061 236 2515



THE SAMPLE SERIES

Since *Sequencer One, Sequencer One Plus,* and the *Hit Kit* all provide sampled sounds support, we ought in passing also to mention Gajit's *Sample Series* disks.

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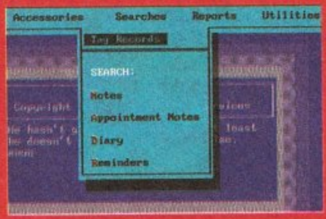
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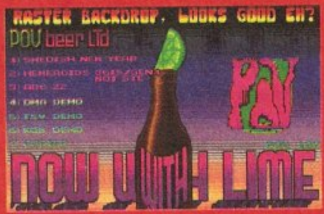
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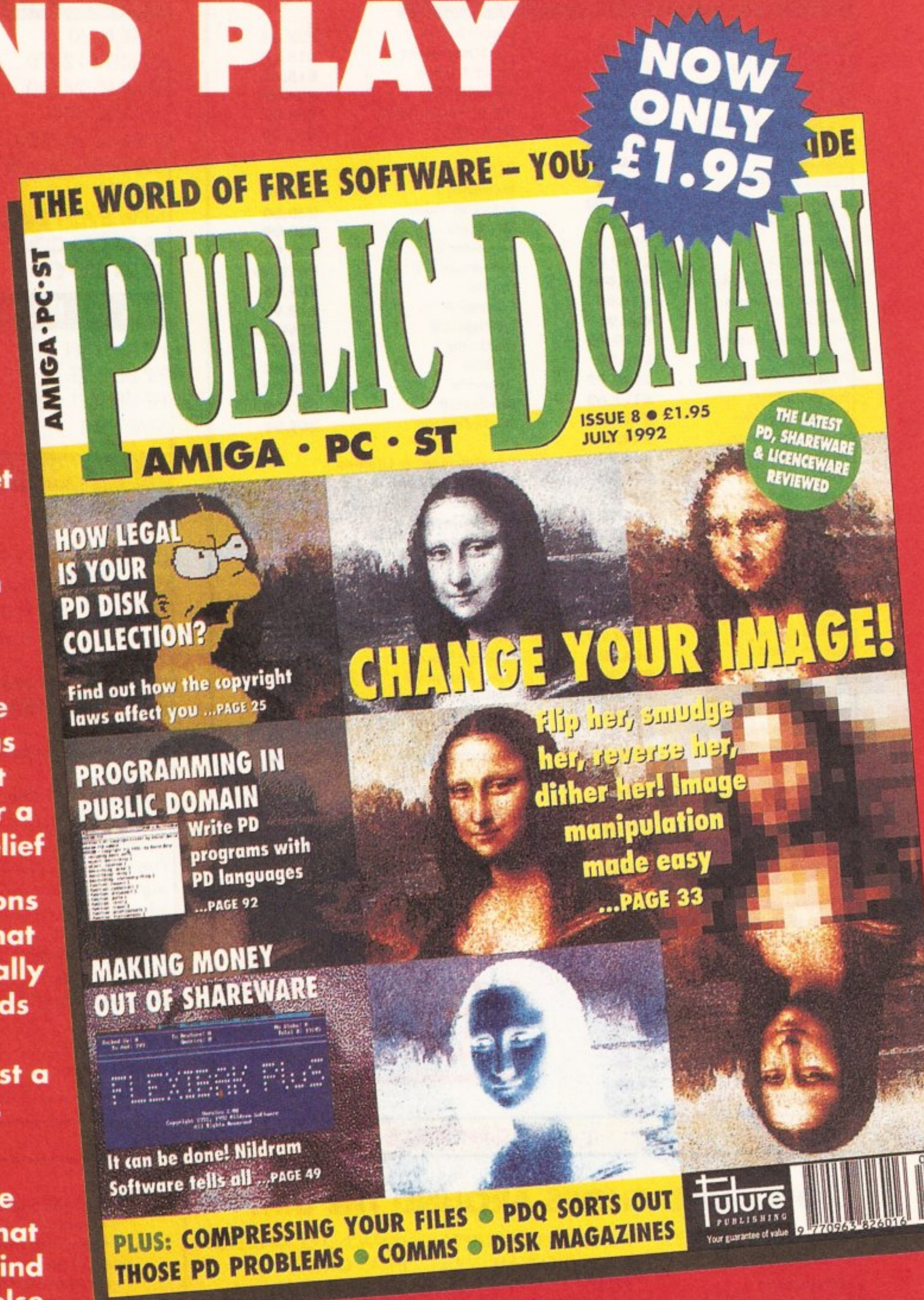


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'Sheet Lightning

***Mark Smiddy* casts a critical eye over *Professional Calc*, Gold Disk's follow-up to the acclaimed *Advantage* spreadsheet**

When Gold Disk first introduced Michael Todorovic's, *The Advantage* it was hailed as the best spreadsheet for the Amiga ever devised. In many respects, there were better offerings: MMS's *Analyse II* had more powerful graphing facilities; Kuma's *K-Spread 4* had more functions. Nevertheless, *Advantage* is fast, superbly easy to use and generally quite reliable. Time has marched relentlessly on (as it has a habit of doing) and the Amiga has a new Workbench with a more professional look. To mark this occasion, Mike put his programming hat on again, improved the *Advantage* interface still further, added loads more features and the result is *Professional Calc*.

Dedicated *Advantage* users will be immediately at home with the new system: the enhanced features and 140-odd functions will soon become second-nature. However, *Professional Calc* is so much better than its predecessor that we felt it necessary to devote a full review to it.

The program is supplied on three disks with a friendly and well written, if limited user manual. Just like its predecessor, it requires at least 1Mb RAM and a second drive is highly recommended.

Installation to hard disk is painless and can be driven directly from the Workbench. Unlike some installs, this one doesn't copy everything carte blanche, but gives you some control over what happens.

Customisation options are not set during installation, but can be altered through the icon information later on. Support has been provided for all the main screens under 1.3 Kickstart in 4, 8 or 16 colours; plus the SuperHiRes, Productivity and A2024 modes added to Kickstart 2 and the ECS.

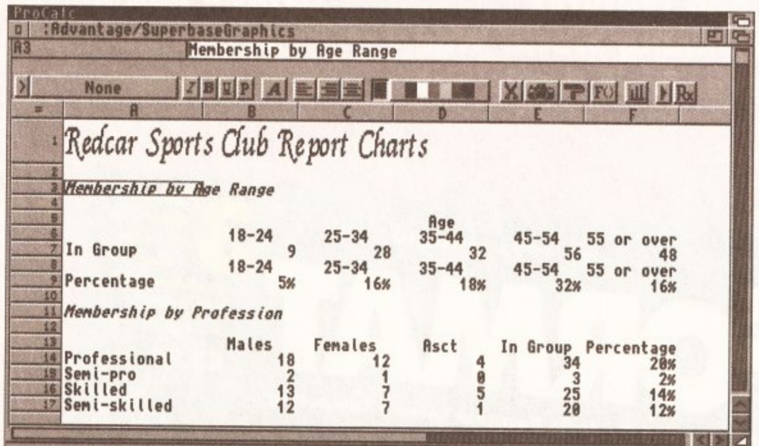
FUNCTION FACELIFT

In perfect tune with the new Workbench design, *Professional Calc* features a drab grey, 3D bas-relief screen. Even the row and column headings are displayed as miniature buttons. The overall effect is very business-like and easy on the eye; better still it's easier for neophyte users to pick out clickable areas.

However, perhaps the best new addition, at least as far as instant functionality goes, is the toolbox. This runs along the top of each sheet and provides instant point-and-click access to functions such as: cut, copy, paste, style tags, colours and the ARexx interface. Beginners and the terminally lazy will find this feature a real boon. Even so, in the best traditions of well-written software, the toolbox can be switched off to reclaim a little extra real-estate on the sheet.

STYLE TAGS

One failure of *The Advantage* was the range of text options. Text within the sheet could be set in the normal console styles of bold, italic and the various colours. But each operation was separate, and although a style could be applied to a block of cells, getting the desired affect could take some time. Lack of proper macros (except ARexx) effectively meant most sheets ended up lacking that certain pazazz.



***Professional Calc* comes with a professional looking user interface. One of the best additions is the tool box which gives easy access to the functions**

With *Professional Calc* this cavil has been completely eliminated and enhanced by the use of style tags. Basically, you can apply a set of parameters to a cell and give that "style" a name. Once defined the style can be applied to any cell or block of cells. One fault with this process is that it's not possible to apply "no style" to a cell. This is, I suspect, a bug and something which may be corrected in a later release.

Something else I took exception to was the similarity to the Mac interface. There's nothing wrong with that (Apple would argue otherwise I'm sure) but it only goes half way. For instance, clicking the Style selector on the toolbox brings up a requester; clicking the fonts button pulls up another. This means you have to move the mouse *somewhere else*. A roll-down selection below the

continued on page 133

JARGON BUSTING • JARGON BUSTING

ARexx – The Amiga's version of the scripting language from IBM mainframes, Rexx. ARexx was written by William Hawes and has become so standard it replaces Amiga BASIC in Workbench 2.

CSV – Comma Separated Values. An import/export protocol used to transfer data between spreadsheets and databases (usually). Every value is delimited by a comma – it's that simple!

EPSF – Encapsulated Postscript File. A postscript program which may be read by other software.

Macro – A set of common operations recorded by the application. Macros can be played back at will to perform a series of commonly used functions automatically and thus allow for faster operation.

Postscript – A page description (printer) language devised by Adobe and used by many high-end laser and LED page printers.

Tag – Text Attribute Grouping. A short form for Style Tag. Style tags are used to attach a common name to a set of text attributes: font and size, italics, colour, and so on. Tags can be viewed as named macros which apply a specific style to a cell or group of cells. In DTP systems, tags are also known as paragraph styles.

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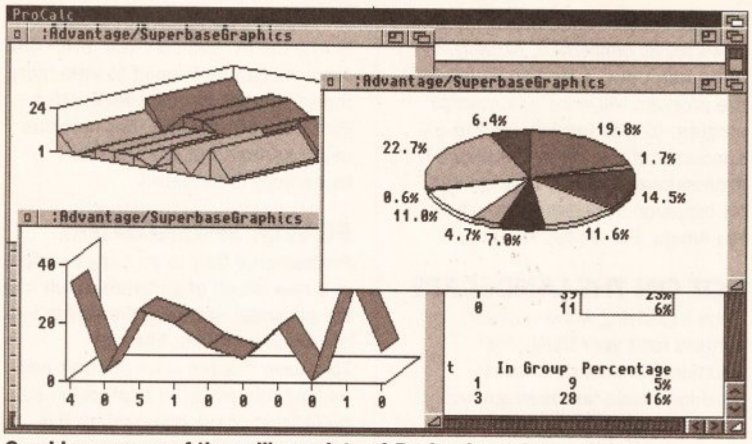
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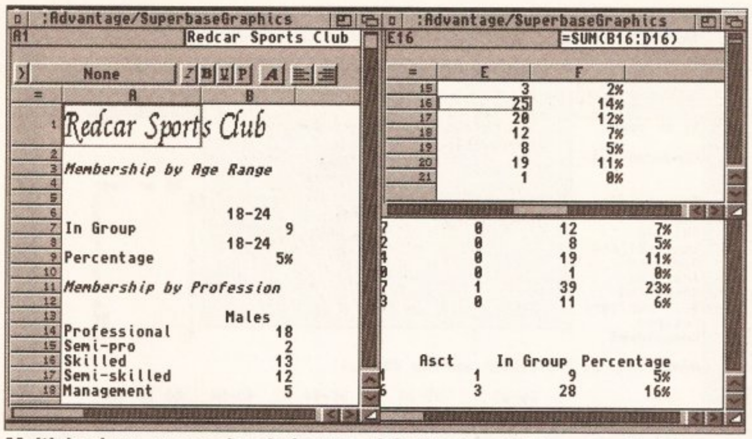
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Graphics are one of the selling points of *Professional Calc* – there is a lengthy list of chart options ranging from Pie to Scatter charts



Multiple views are one handy feature of *Professional Calc*; several windows to one spreadsheet can be viewed at once

continued from page 131

selection point (like a menu) would be much easier – and faster – to use. Also, the style tags have to be defined using a menu function – surely the names could be entered directly into a toolbox gadget? Oddly enough, tags are not supported by the graphics functions – which seems a little odd.

Standard Amiga bitmap typefaces are fully supported – with sizes in excess of 120 points would you believe? (I would have preferred a fonts requester that could retrieve typestyles from other drawers and devices – but that's a little picky). Postscript support is complemented by several specially built screen fonts – and there is nothing to say these couldn't be used on a dot-matrix printer.

CURIOUS OUTLINES

One particularly interesting new feature is the use of multiple views. This sort of thing is common in other systems but seems rare on the Amiga. The idea is to open several "child" windows based on the current spreadsheet.

Each view shows a separate part of the sheet and can be used independently (ranges can be copied and charted) of the main sheet. Any changes made in any view are, of course, reflected in the main display. When a view is being used the menu bar changes colour to indicate this – nice touch that.

A curious addition is outline support. Outlines are difficult to describe, but the idea is to gather a group of common data under a heading and collapse the display under that heading. Groups of headings can themselves be compressed down and so on. This feature may be useful to hide ranges of rows and columns and just show results – but its inclusion in a spreadsheet seems a little eccentric. More time could have been spent in other areas.

Other new functions include a proper (if limited) Fill Range and macro features – in *Advantage* these were implemented in ARexx – and that made them tediously slow.

GRAPHICS GALORE

Graphics have always been one of the strongest selling points in *Advantage.* Not just because it offers a wide range of options, but mainly because they are so accessible. *Professional Calc* makes things even simpler. Clicking an icon on the toolbox pulls up the chart requester – where each chart is represented by a picture depicting what it will looks like. This is much more beginner (and expert) friendly than fishing through the menus for that elusive "3D/split/proportional/pie chart" or some such thing.

Basically, *Professional Calc* offers the classic charts: pie, line, scatter, bar, hi-lo etc, plus 3D lines, 3D area and dual pie. But why, oh why isn't it possible to overlay two different charts on the same display? This was a major flaw with *Advantage* and one which I would have expected to see corrected.

Admittedly, one of the pre-define charts comprises a pie chart alongside a vertically stacked bar chart – but this is hardly sufficient. I want the ability to chart two different ranges on the same display with different Y axes if necessary. Also, the ability to chart some row data along with an independent piece of column data *elsewhere on the sheet* would be handy too.

WISHFUL THINKING

On the subject of extra features, a facility to calculate linear regression on a scatter chart and the area under a line would be nice. Just to be really pernickety, the ability to define the viewing angle and perspective of a 3D chart would be nice.

This considerations might seem a little "OTT" to the casual user, but it should be considered essential for those presenting reports or making presentations. In this respect, an overall impression of professionalism

BEGINNERS START HERE

What is a spreadsheet?

At its simplest level, a spreadsheet is a tool for processing lots of numbers in rows and columns; matrices if you like. (That said, pure mathematical matrices are a different thing altogether and are not supported by *Professional Calc*). Today's spreadsheets are used for a variety of different things but most find a home in the business environment where they are used for complex costing and cashflow analysis. Many even have simple database-like and word processing functions too.

What is a cell?

Every spreadsheet is constructed from a grid of many columns and rows; the intersections of which are called cells. Rows are marked with numbers, the columns letters – so every cell has a unique address (cell reference) made up of a letter and a number. Cells can contain formulas, numbers and text; they may even be empty. At the simplest level, you can get the sheet to add up an entire row or column with one simple command. In this respect, spreadsheets can be viewed as extremely powerful calculators.

How are calculations carried out?

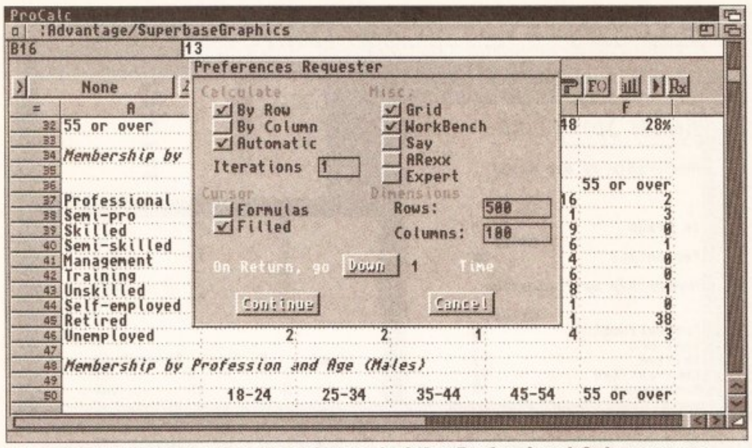
The biggest problem with a spreadsheet is it's an open application: a blank piece of paper; like the first screen on a word processor or an empty database. The application is defined by the user and that means you have to enter all the formulæ yourself. Simple arithmetic such as 2+2 or 5*4 can be contained in a single cell, but more complex problems may involve the use of many hundreds of cells with forward or even circular references.

What are forward and circular references?

In simpler systems these are errors, the simplest of which is a forward reference. To explain how this comes about requires a knowledge of how spreadsheets calculate results. As has already been explained, the spreadsheet is constructed from a large grid of cells: row-by-row, column-by-column. When you ask the sheet to recalculate (work out the results of any changes you have made) it works through the entire sheet in a specific order.

For columnar recalculation: It will move down each column (a row at a time) until it gets to the bottom, then move to the next column until it reaches the end of the sheet. For row-wise recalc, it goes the opposite way, traversing the columns (left to right) and moving down one, when each row is completed.

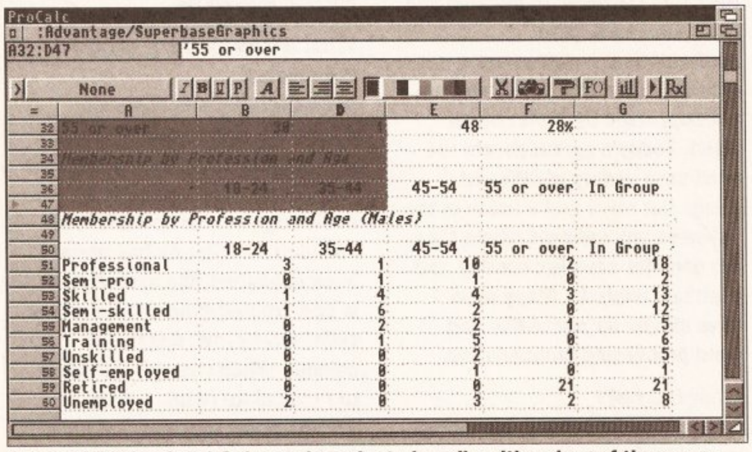
Forward references occur when a formula requires a value from a cell which is ahead of the current recalc position. In other words, the cell is always one calculation out of step. Circular references are more or less the same, but in this case, the two or more cells may reference each other. These features may be required for some applications and the correct answer is determined by the number of iterations – the number of times a spreadsheet is recalculated.



Mac like requesters are part and parcel of the *Professional Calc* program; guaranteed to give your mouse a workout!

is often as important as the information presented. This is not what power users demand; it is what they expect.

In spite of my cavils, there are a lot of chart options – far too many to even list, let alone describe here. However, a great deal of thought has



Areas of *Professional Calc* can be selected easily with a drag of the mouse. Here, an area covering the cells A32:D47 is shown

been put into how the various requesters appear. Essentially, you are never struck by a barrage of questions – unless you want to add fancy bits such as: headers, footers, weird grids – you name it. *Professional Calc* even has a dithering feature allowing access to 136 screen colours – so they claim.

FILE AND PRINTER SUPPORT

Professional Calc will import files from: *Advantage 1.1*; *Office Calc* (aka *Advantage 1.0*); *Maxiplan* and *Lotus 1-2-3*. Gold Disk admits the *Lotus* support is not perfect, but it should be quite adequate for most Amiga users. (If you really must use *Lotus*, get a KCS Power PC Board or something similar and run it on that). For *Lotus* export, *Professional Calc* provides the option of not writing the extraneous file header. This startup default is accessed through the icon info and will not usually be altered anyway. CSV export is provided for compatibility with database systems such as *Superbase* and graphics can be saved as IFF (of course) CAD and ProDraw.

The printer options are more interesting because someone at Gold Disk has realised that Postscript exists outside the realms of *Professional Page*. Postscript, Adobe's page description language is as good at printing graphics as it is at printing text. With the price of high-quality Postscript laser printers dropping all the time, support in *Professional Calc* is a bonus.

Version 1.04 reviewed here is capable of printing even on the larger A3 machines – which has to be good news for all concerned. Notably, even if you don't own a Postscript printer, the program will write a Postscript program to disk for despatch to a specialist. If your work includes DTP, *Professional Calc* will save an EPSF for inclusion in pages prepared on the Amiga, PC or Macintosh.

DOT ON THE LANDSCAPE

If the high-flying world of laser printers isn't your thing, the traditional impact dot-matrix machines have not been ignored.

The program will even print sideways (landscape) on most graphic printers – that is, not daisy wheels. Taking that into account, I think the HP Laserjet/Deskjet 500 printers should have been catered for. Although they should print using the Preferences driver, it is doubtful the effect would be as good as a customised support for these popular machines.

CONCLUSIONS

There is little doubt that Amiga-based spreadsheets have a very limited appeal – since the machine is not generally viewed as a business micro.

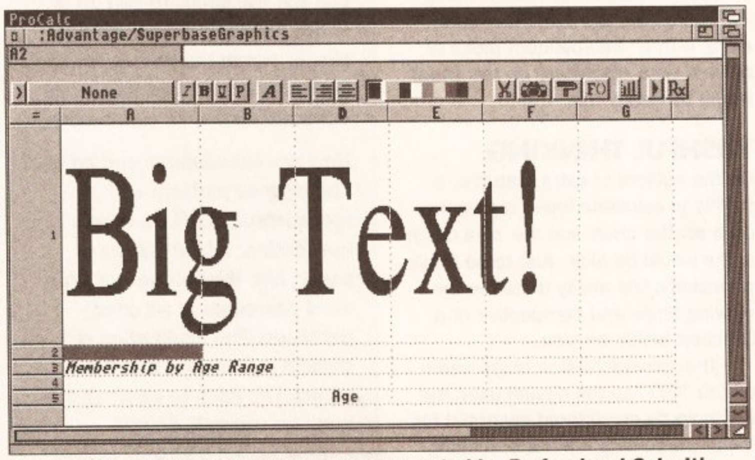
A lot of snobbery still surrounds the PC simply, "because IBM makes them". The Amiga, on the other hand has (or rather had) two major problems. First, thanks to a thriving games market it was viewed as a games machine. This has been eased by the proliferation of console systems and explosion of PC games. Second: the user interface, Intuition was looked at as a bit of a joke. Given that the Amiga was the first affordable micro to offer reliable multi-tasking, the GUI was a bit of a let-down. Kickstart 2 has changed that and with rumours of new, faster machines coming, the Amiga might finally become the machine others can only promise.

However, this can only be the case if the software can match the hardware; and all things considered, the massive range of clever software is why the PC still survives. Even 486 systems can be likened to little more than a leather trimmed Mini with a Ford-Cosworth engine. The machine might be fast, but the chassis technology is outdated.

POWER SPREADSHEET

Professional Calc is an early example of a new breed of software which has the potential to propel the Amiga into the world's offices. Michael Todorovic has put a lot of effort into making this powerful application so far in front of the competition it is unlikely they will ever catch up. However, it must not stop there. Being best on one system does not mean you're best all round.

It is comparatively weak when compared to, say: Informix's *Wingz* or Microsoft's *Excel* – and it is those systems by which it will and must be judged. I hope Gold Disk will listen to the criticism waged here and encourage Mike to improve the product until it reaches beyond all the competition and can truly be called the professional's choice. As far as the Amiga is concerned though, if you need an all-singing, all-dancing sheet this one is definitely worth closer examination. AS



Standard Amiga bitmap typefaces are supported by *Professional Calc*. It's even possible to view text which is even bigger than 120 point in size

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Functions ●●●●○
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Documentation ●●●●○
Beautifully laid out, but a little too sparse for beginners.

Graphics ●●●○○
Easy to access, but limited for a power spreadsheet.

Value ●●●●○
High price, but high performance too.

Overall rating ●●●●○
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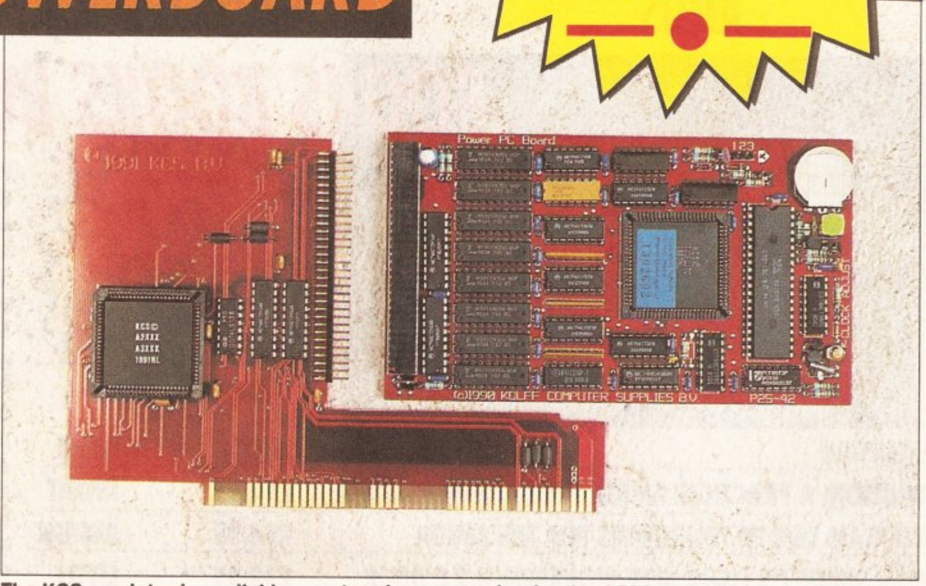
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METAMORPHOSE YOUR MACHINE

The KCS Power PC Board was the first of the PC emulators available for the Amiga 500. More recently a version has been released on a plug-in card for use with the A1500 and upwards range of Amigas.

The board uses an NEC V30 processor, equivalent to an Intel 8088 as used in the IBM XT and its clones. The board comes with 1Mb of RAM. Of this, 0.5Mb is given over to a private PC RAM disk, while the other 0.5Mb can be accessed by either the Amiga or PC. In PC mode on a base Amiga, there is 704K of free memory with a further 192K configured as extended memory (EMS).

Installing the Powerboard in an A500 is a snap. Just unplug your machine, remove the trapdoor expansion cover, plug the card in and you're ready to go. Preferences can be set up with the supplied installation software.

The board will emulate several PC screen modes: MDA, CGA, Tandy, Hercules, and 16 colour EGA and VGA at a resolution of up to 640x480 pixels.

Most popular Amiga hard disks are supported by the board, including Commodore's A590, the GVP Impact and the Supra. 3.5" 720K and 5.25" 360K floppies are also supported.

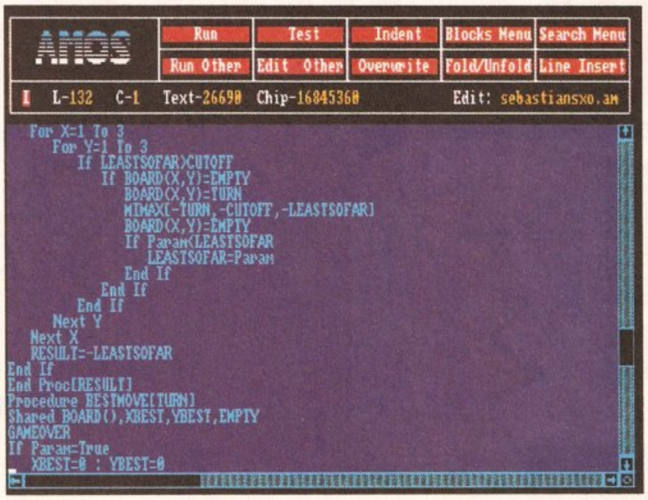
Serial mouse emulation is supplied via the Amiga's standard mouse. The Amiga's serial port can be accessed by DOS for use by modems and so forth.

The system is ideal for users who need to run PC applications and who don't want to go to the expense of buying a PC. UK-based Bitcon's technical support line makes the Power PC Board an even more attractive proposition. And, because it is a complete PC in its own right, all upgrades are software-based.

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AMOS



AMOS

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AMOS COMPILER

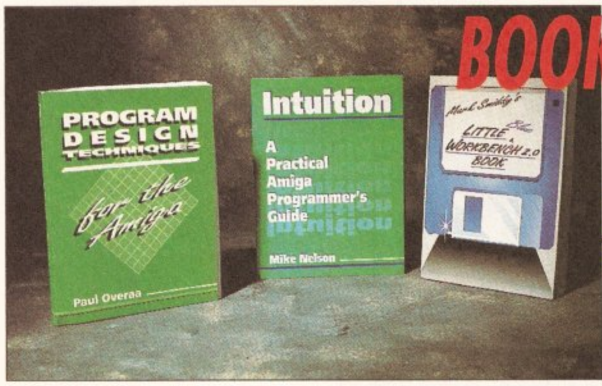
DEVPAC 3

HiSoft's *Devpac 3* is probably the most advanced assembly language programming system you can buy for your Amiga. Not only does it come with a fully-featured assembler with macro support, but it also includes HiSoft's editor and debugging program *MonAm*. Commodore's header files are supplied, so you can create Amiga applications immediately.



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Use of Intuition, the Amiga's graphical interface, is essential for giving your programs that professional look and maintaining compatibility across different versions of the operating system. This book shows you how, with sections on screens and windows, communications, menus, gadgets and requesters.

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If you've ever written reams of code only to find that it doesn't work and you can't find the bugs, then this book is for you. It shows you how to design your programs *before* typing them in, ensuring more reliable and efficient code.

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Mark Smiddy, probably one of *the* most knowledgeable Workbench gurus, brings you this guide to the Amiga's operating system. Handy tips include how to make a boot disk, how to set up a printer with the right driver, and how to customise your startup-sequence, with extensive examples.

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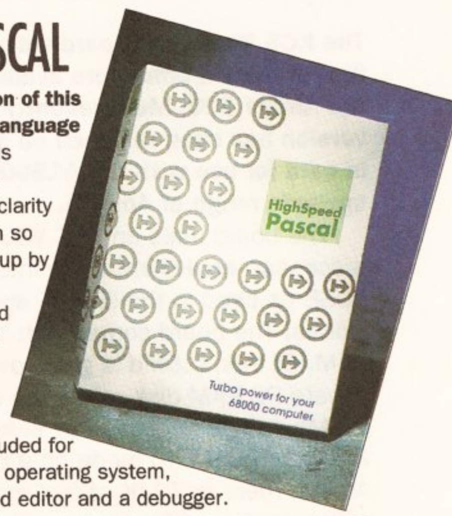
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HISOFT PASCAL

At last there's a version of this popular programming language for the Amiga! Pascal is popular throughout the academic world for its clarity and precision, so much so that it has been taken up by large portions of the commercial sector. Find out why it has done so well with HiSoft's blindingly fast version, *HighSpeed Pascal*. A full set of files are included for accessing the Amiga's operating system, as well as an integrated editor and a debugger.



DESCRIPTION	PRICE	ORDER
HISOFT PASCAL	£89.95	HISOFT P

CD WHIRL

Andy Storer visits Multimedia '92 and comes away with news of the latest CDTV authoring systems

Multimedia '92, held at Wembley 2 in mid-June was one of the best exhibitions I've ever visited and over the past five years I must have been to them all. I have to admit some of them have involved nothing more than grabbing a quick train to London, snatching every press release I could find and reading them up on the way home but this show had me gawking at stuff for a good eight hours. Over 70 exhibitors were showing off their wares and while most of these were PC-based, there were a few Amiga CDTV set-ups away from the main Commodore stand.

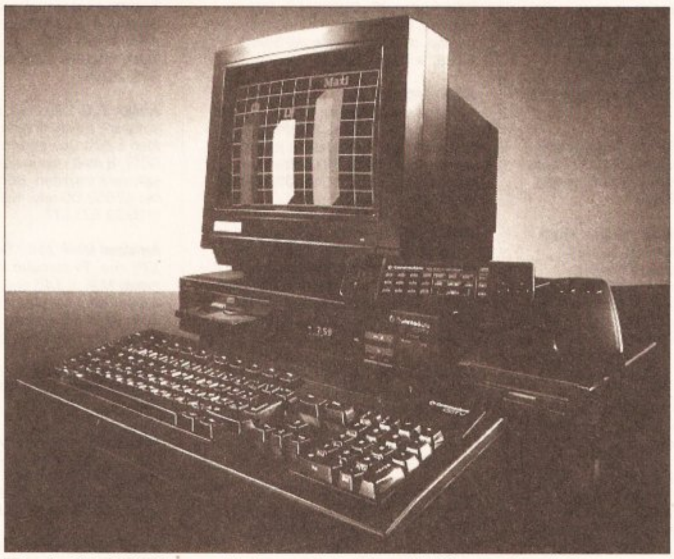
Now multimedia, whatever you might think of the term, is pretty fascinating stuff, so much so that most purveyors of its hardware seem to spend most of their time figuring how to get it to work faster rather than concluding what they actually want to use it for. Loads of applications come tumbling out of the ether of course – desktop TV, video e-mail, interactive training, point of sale, even virtual reality. And there's loads of whizzo add-on cards, touch screens, hi-res monitors, laser disk systems and video cameras all waiting to be hooked up together.

BE A DEVELOPER

But as I said, the applications arena is wide open because the technology is still in its infancy. It's almost as though multimedia is at the same stage as computers were, say, ten years or so ago – before someone had the bright idea that you could actually use them to write a letter to someone. So the fact that there were a number of off-the-shelf authoring systems available for the Amiga CDTV is not only encouraging but just goes to show that if you want to reach 1.2 million users in the UK, many of whom will be buying a A570 CD-ROM drive when it arrives, you could do worse than to buy such a system now and do the business with a market just dying for a new product.

CDTV INTERPLAY

Leading CDTV systems engineers, Optonica has announced an August launch for its *Interplay* authoring system. Billed as 'a multimedia authoring environment for non-technical producers… who require the production of professional applications without the normal excessive learning curve and development costs', *Interplay* uses a desktop publishing style front-end to make it relatively easy for would-be CDTV authors to build applications by laying out multimedia productions as series of pages containing media clips. The system comes with a low overhead runtime player and a motion video playback simulator. It will handle sampled audio files, ANIM animations, ILBM pictures in all modes, *VideoStream* motion clips, SMUS music files and multi-font text support. But no price is fixed as yet though. More information from Lee Gibson, Optonica, 0455 558282



The Amiga CDTV as an Enhanced Multimedia Computer with a QWERTY keyboard, disk drive and infra-red mouse

SCALA MULTIMEDIA 2.00

What many consider to be the premier multimedia presentation package for the Amiga, *Scala*, has now been upgraded with advanced sound/graphics synchronization, improved animation loading and more than 25 new visual effects. Commodore claims *Scala* is the top-selling multimedia authoring package on any platform in Europe and has set the standards by which all others follow. With *Scala Multimedia 2.00* available for £395 ex VAT, sound, music, video and graphics can now be timed in seconds and frames while animations can be loaded directly from a disk as they are played thus enabling a 16Mb animation to play back on a 3Mb machine with instant access. Soundtracks can be added to animations without any reduction in the time of playback. Video manipulation techniques have also been enhanced with effects such as flips, flows, rolls and stretches now possible. Up to 112 slides can be viewed simultaneously on-screen using *Scala*'s *Shuffler* with the user able to edit and shuffle the sequence of slides for presentation with the click of a mouse. The package's built-in *Infochannel* module allows *Scala*-based presentations to be distributed to an unlimited number of remote sites via telephone or data broadcast links.

VIDEOSTREAMING

A stereo audio sampler, real time image digitiser and professional video deck controller along with production and editing software for the Amiga and CDTV has also been announced by Optonica. Although it's a touch pricey at, ahem, £2500, *VideoStream* is targeted at multimedia title developers and requires an Amiga 1500, 2000 or 3000 with 2Mb RAM, hard disk and video deck. All video recorders conforming to Sony's 9-pin serial protocol – covering a range of high-band U-Matic, MII and S-VHS decks – and offering perfect freeze frame and frame advance are supported. With a fully automated front-end, WYSIWYG previewing, ARexx compatibility and on-board runtime player, *VideoStream* offers point and click video and audio sampling. Used in conjunction with Optonica's *Interplay* authoring system, motion video files can be incorporated into CDTV titles via a 'video from hard disk' simulator. Video and audio portions can be fine cut via *VideoStream*'s built-in SMPTE timecode generator. AS

STILL NO A570

Although there's still no sign of it, Commodore is confidently predicting sales of 100,000 A570 CD-ROM drives before the end of the year. A £399 price point now seems likely since the drive has been upgraded to include RAM expansion and built-in hard disk. But at least Commodore is keeping the ball rolling. It's just announced a new bundle for CDTV – the Enhanced Multimedia Computer, or as it's known in the trade – The Multimedia Pack. This consists of a CDTV, keyboard, mouse and disk drive for £599. CDTV product manager, Gary Lewis, claims the bundle sold 6-7000 units in its first two months on sale in Germany. So CDTV has now come full circle – whereas once it was pitched as a machine with no connection whatsoever with computers, it then became the Amiga CDTV and now the EMC. A year sure is a long time in Commodore computing.

THE TOP TEN CD TITLES ON THEIR WAY

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CINEMABILIA
DISTANT SUNS
NORTH POLAR EXPEDITION
NEW YORK CITY
MEDIALEXICON
PROWRITE/FLOW/DESIGN
WORKS
MUSICOLOR
FIDO FAX
…more info next month

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FANZINES

PD monthly. News, charts, reviews and loads of free software, more than just a fanzine. 2 disks every month. Try it! It's only £3: P.O. Box 1987, London, N13 6PP.

Mega Disk Issue 2. Two-disk magazine, packed with even more reviews, news, games, cheats, music, PD, programs and utilities, send £2.50 to R Wild, 8 Cranleigh Place, Whitley Bay, NE25 9UD. personal

PERSONAL

Exchange Amiga 500 public domain, Demos, music, etc; for your used Mercury phonecards. Regular contacts wanted. David James, PO Box 1154, London W3 8PZ.

GFA Basic; if you use GFA, why not contact The Forum. Both beginners and advanced users welcome. Also advanced tutorial disk available. Ring John any time on 0788 891197.

FOR SALE

A500 Plus. 2 meg RAM, 52 meg Quantum with monitor and printer . Also selection of software £850 OVNO. ☎ 0606 594717.

Amiga A500, 4 Mb, A590 20Mb H/D, twin floppy, modulator, mouse and mat, cover, loads of disks, original boxes, manuals etc. £500 or will split. Call Ken after 6pm 0929 462634 (Dorset)

Power scanner version 2.0 only two weeks old. Fully guaranteed, free Mastersound included. Will deliver in London area. £85. Contact Barry 071 2673031.

Epson LQ 2500 Printer, manual and spare ribbons included. £150 or best offer may exchange for A590. ☎ 051 428 5429 after 6pm.

Amiga 1500, 1084S monitor, loads of software, kernel plus abacus manuals, magazines. Excellent condition. Cost over £1300 new, sell for £650 ono. Contact Richard Vine, Tadpole Cottage, Eardisland, Herefordshire, HR6 9AR.

A3000, 100Mb, 6Mb RAM. 1950 Monitor, 25 mhz, speakers incl 8 months old, plus software. Quick sale. £2300 ono. Ask for Pam. ☎ 081 886 8656 evenings.

Amiga A500 plus (April '92), GVP 52Mb hard drive incl. 4Mb RAM (bought with above), Cortex 4Mb external RAM expansion (upgradeable to 8Mb) for A500/A500+/ A1000 with own PSU (Brand new), Philips CM8832II colour monitor, Star 9 pin colour printer and ribbons, Cumana second drive, GFA Basic 3.5, Amos 1.3, Amos compiler, Amos 3D, Protext 5, SAS 'c' compiler 5.1, Deluxe Paint, Photon Paint 2, over 11 games (unused). Worth over £2000. Will split. Ring for more details. Sensible offers. ☎ 081 427 6511 evenings.

Software video studio: Imagine, Deluxe video III, Video Titter 3D, Videoscape 3D, DigiPaint 3, Deluxe Paint III, Fantavision, Photon Paint II,. original disks, manuals. All boxed, £185. ☎ 0298 22862.

A500 1Mb 1.3 Extra drive, hand scanner and software. DPaint 4. Real things, Safari Studio, 30 Amiga mags and software. All manuals, joystick, mouse, dust cover. PD software various games £650. ☎ 0359 40620 evenings.

Amiga 500 1. 3, mouse, joysticks, expansion, modulator, external drive, action replay, rombo colour digitizer, panasonic camera. Worth £650 sell £400. GVP 52 Mb with 2Mb. 3300 KXP 1124 printer £130 – ☎ 0752 670880.

A500 1.5 Mb. UpgradeVortex 40Mb hard drive Midi Interface Music-X. 10 games Sonix-2.0 Xerox 4020 Ink-Jet Printer (4024 colours). Panasonic KXP - 1080 Dot Matrix Printer. All manuals included £800 ono. Chris 446521.

GVP SCSI controller for A1500/A2000. V3.07 Autobooting Fast roms. Manual and software bargain at £115. Vidi Amiga, Vidi Chrome, Vidi RGB. The Complete video digitiser, bargain: £95. ☎ 081 395 2525.

CSA68030 Accelerator with MMU, 68882, 4 Mb Dram, 512K SRAM. Software/ hardware suitable to 68000 mode. Fits A5000, A1500, A2000. Boxed with manual. Absolute bargain at £680. ☎ 081 3952525.

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Amstrad QMP 2160 Dot-matrix printer £75 ono. TV modulator. New action replay M.K. II £45 ono. WTS 512K expansion £15, new cumana drive, £45. All in full working order. Try before you buy 0516 258994 4pm+.

A590 hard drive with 2Mb disks and manual £200. Dave 0252 519092 evenings.

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A590 hard drive with two meg fitted £250, Philips 8833 £180, Star LC10 colour printer. £130 all ono. Numerous mags plus disks offers. ☎ 0455 610879

Amiga A500 A590 20Mb Hard drive with 1Mb RAM £200. 0483 772739 evenings and 0252 24461 ext 2851 daytime.

DeluxePaint 2 (No Box) £5, DeluxePaint 3 £10, both include manuals (no covers) all disks. ☎ 0954 780856 after 7pm.

Amiga 500, Commodore model 1081 monitor, 1 meg, 20 games, joystick, mouse, manuals all necessary leads in mint condition cost £900 sell for £450. ☎ Elliot 0745 334035 weekdays after 6pm.

Amiga 2000 with XT bridgeboard (IBM compatible) 20Mb hard drive loads of software £695 ono. Also patel Action Replay £30. For more information ☎ 081 959 7002.

Amiga A2000 Quantum 40Mb HD 2091 controller at BB 20Mb HD 2058 RAM Card 3Mb RAM 108450 Monitor Mouse KYBRD various software manuals £1700 ☎ 0733 371304.

68020 (8Mhz) + 68881 (20Mhz) CSA midget racer for A500, A1500, A2000. Fits in CPU socket. £90 ono. For more information ☎ Richard 0206 854946 after 7pm.

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Hardware: Citizen HQP40 24-pin printer, Audio engineer + (50Mhz stereo + software) and Trilogic mono ssamplers, sound-blaster. Software: Protext V 5.0, DPaint III, Sonix, distant, Suns, Amos V1.3. Loads of programming manuals. ☎ Nick 0274-621118.

GVP Quantum hard disk + RAM card 52Mb fit A2000. 25Mhz 68030 accelerator with 4 Mb Dram GVP A3001 Kit. XT Board 51/4 drive all complete boxed £600. Many extras. After 6pm. ☎ 027664298.

Original Amiga software in great condition Populous II £15. Jimmy White's snooker £15. UTOPIA £14. Alien breed £13. Wonderland 14. Supermacy £14. ☎ Steve on Birmingham 021 743 9468.

Slow scan TV for the Amiga for sale . 8 secs, M1 , etc £145. Also colourpic real time digitiser comp and S-VHSinputs plus PSU. £275. ☎ after 6pm. Frank 0279 420755.

Yamaha electronic keyboard PSR 38 61 keys Midi out/in 5050 voices, split, auto chord and keyboard percussion, 24 accompaniment styles manual, power adaptor, music book, £190 ono. ☎ 081 8708084, 081 87033034 after 9pm.

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PD Pssst – don't tell SID

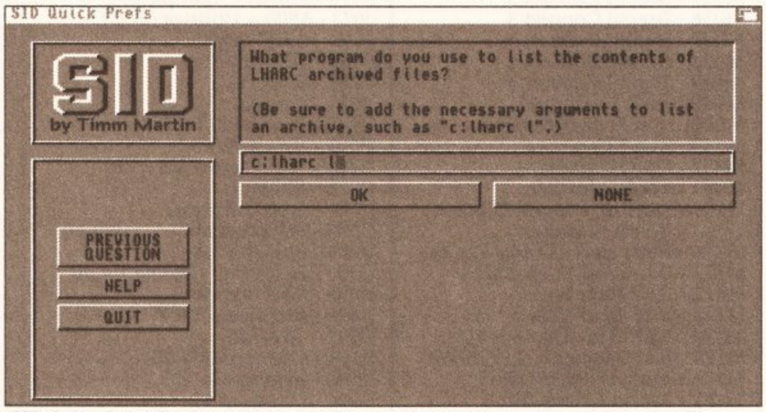
Ian Wrigley puts the new version of SID under scrutiny, discovers a new collection of first-rate fonts as well as picking out the best of the latest PD and shareware

This month, I'm looking at the new version of *SID*, plus (of course) the best of the PD and shareware available at the moment. Strangely enough, there seems to be a little more software out there – strangely, because normally summer is the 'dead' time. Perhaps it's because of the interest generated by the new A600 – or perhaps it's because programmers are afraid of the sun!

Anyway, eyes down for a full house of serious PD software...

Well, it's finally arrived. After a one-and-a-half year wait, Timm Martin has managed to solve all the problems with *SID 2.0*, and has released the trial version to an eager Amiga world. For those of you who haven't come across version 1.06 of the program (why not?!), *SID* is the de facto standard Amiga utility for getting around your hard disk. Although other programs have appeared since *SID* first hit the scene, many of which are superior in one way or another, *SID* still has thousands of devotees around the world. Version 2.0 was written to update the program and, according to the author, to make it the ultimate utility. So, the question is, does it live up to that aim?

The program comes in three different versions: Personal, a compact version that contains the basic features of the program but that is designed for those with not much RAM; Trial, which is the one you'll find distributed on bulletin boards and from PD houses, and which is fully featured except that it doesn't save any user preferences; and Professional, which is the version you'll get when you pay your $25 shareware fee. It's registered in your name, and allows you to save preferences so that on launching it's configured to your personal tastes.

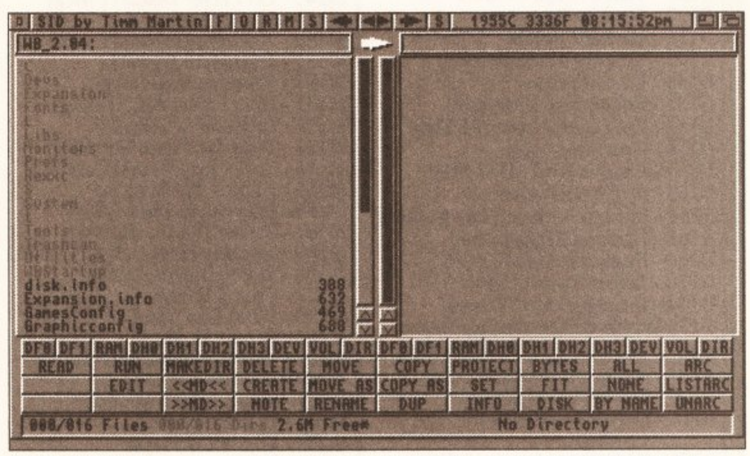


***SID 2.0*'s QuickPrefs program configures the main program and copies files into the correct area of your system. Prompts suggest reasonable responses to many of the questions**

SORTING OUT SID

To configure *SID*, you need to run a program called QuickPrefs, which asks a string of about 20 questions, such as which text editor, graphics viewer and so on you use. Then, theoretically, all the correct files are copied to the correct places on your hard disk, so that the program will launch automatically. Unfortunately, the version I received (from the CIX bulletin board) didn't seem to be too interested in doing that, so I had to specify the paths for things like the help files myself. And I couldn't get the program to run from its icon – which uses the IconX program to launch *SID* proper – because it was desperately looking for a utility called 'brun', which I don't appear to have in my system.

Still, back to the Shell I went (a little peeved now, but willing to be impressed), and launched *SID* from there. And then ran screaming from the room. When you launch *SID*, you realise just how many features have been packed in. There are buttons everywhere, and right-clicking on one set of buttons reveals another set – there apparently wasn't enough room on a standard screen to fit them all in.



***SID*'s display is... er... crowded, to say the least. And behind one set of buttons, accessed by right clicking, is another set. All fully customisable. It's enough to scare the most techie of users**

Being one of those people who don't read manuals unless absolutely forced to do so, I immediately launched in to the program, clicking and seeing what random commands from the menu do. At least, I did for a few minutes,

continued on page 143

BEGINNERS – BEGINNERS START HERE

What is PD?

PD is a general term which many people incorrectly use to refer to all freely-distributable software. In fact, PD (which stands for Public Domain) software is only one branch of this area; the other main one is shareware.

Essentially, PD software may be copied and used by anyone, although some authors place restrictions such as not allowing a PD library to charge more than a certain amount for the disk.

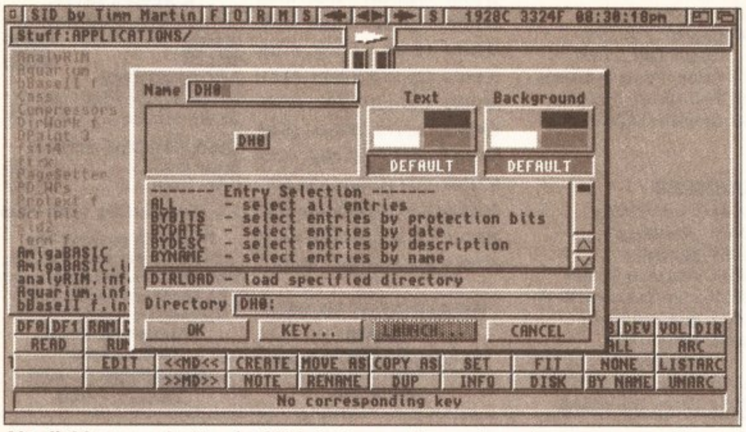
Shareware, on the other hand, should be treated more like commercial software. Although you are allowed to copy and pass around shareware programs, if you like one then you should pay the requested fee to the author – it's normally only £15 or less, and often entitles you to an upgraded version or a printed manual. Paying your shareware fees encourages software authors to write more programs – and if they don't, the Amiga scene will be a poorer place.

Can I pass other people copies of PD?

Yes – that's the way that it gets to a wide audience. Just make sure that you have followed the author's requirements for distribution – normally that you don't charge more than a certain amount for the disk, or that you make sure that all the documentation is included on the disk.

You can also pass on shareware – but not any registered copies of programs.

If, when you pay your shareware fee, the author sends you an improved version of the program, then be careful not to give that out. Only pass on unregistered shareware.

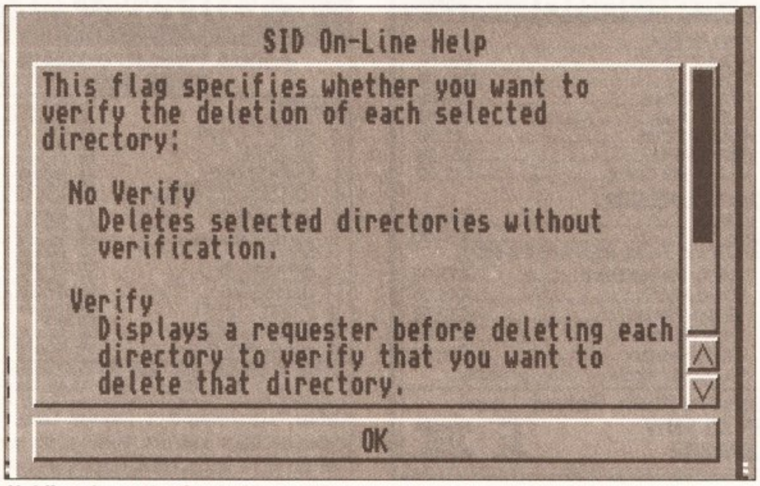


Alt clicking on a button in *SID* brings up a Requester where you can edit things like the colour, name and function that the button performs

continued from page 141

until I realised that the only way to have any chance of getting the most out of the program was to sit down and plough through the documentation. Hmmm... what documentation?

In terms of actual help files, there doesn't seem to be much documentation about. However, the program has an excellent on-line help facility which just about makes up for this. Hitting the Help key provides general help (as does selecting the Help menu option), while holding Control down while clicking on any button brings up context-sensitive help on what that button does.



Holding down the Control key while you select a menu item brings up a Requester with details about what the menu item actually does

BUTTON BANKS

All buttons are totally configurable: just hold down the Alt key while clicking and a requester appears, asking you to specify just what the button does. There are two 'banks', each with fifty buttons, so even power users shouldn't run out of room.

Configuring is easy; for example, if you don't have a hard drive named dh3:, but you have a floppy df2:, Alt-click on the DH3 button, select 'Dirload' as the command to be performed – explanatory text that this means "load specified directory" appears to help you – and select directory df2:. Finally rename the button and click OK. Simple. You can even define keyboard shortcuts for each of the buttons, if you're happier with the keyboard than the mouse.

The menus are frightening in their complexity; seven of them, each with a multitude of entries. However, again, by holding down the Control key as you select a menu item you access the context-sensitive help which describes exactly what the consequences of making this choice will be.

There's no denying that *SID 2.0* is powerful. Unfortunately, it's also very complex, and on-line help is no substitute for a detailed documentation file. There are stacks of hidden features in the program, and if you don't know how to access them, context-sensitive help isn't much use. For instance, although there is a 'Parent' button to take you one step up in the directory tree, you can perform the same action by clicking just to the left of the directory window. This is mentioned in the on-line help, but since you're unlikely to ever access help for the Parent button – it's pretty self-evident what it does – you may never find the feature.

I have to admit that I was never a great fan of the original *SID*; it always seemed to me that there were far more features than I needed, while the ones that I did want weren't intuitive or easy to use. Version 2.0 of the program introduces even more features, and even more customisability. If you liked the original, you'll love it. Personally, I'll stick to *FileMinder* (reviewed last month). The 'Program rating' for this program reflects my personal tastes, so you may well not agree with my views. But *SID 2.0* is just too complex for someone who only uses a file navigation program as a means to an end, and not as an end in itself. The lack of proper documentation doesn't help, either.

Program rating 6/10

WHERE TO GET IT

There are two main ways to get hold of Amiga PD and shareware: from a bulletin board or from a PD library.

The advantage of using a bulletin board is that often the latest software is uploaded as soon as it's available. On the down side, you need a modem to connect, and you'll have to pay phone charges (and sometimes a connection fee to the bulletin board as well).

There are a growing number of bulletin boards with a wide range of Amiga software available for download. Check out 01-for Amiga (071 377 1358) and the Cheam Amiga Bulletin Board (081 644 8714). Another good option is joining CIX (the Compulink Information eXchange), which not only has Amiga software but also contains conference and file areas on a wide range of subjects, from politics to scuba diving, biking to Science Fiction. Many of the *Amiga Shopper* writers have accounts on CIX, so you can get first-hand advice on your problems, too. For more details, call CIX on 081 390 8446 (voice) or 081 390 1255 (modem).

If you don't want to use a bulletin board, the other way to get PD software is from a PD house. Many advertise in *Amiga Shopper*, and you'll find a comprehensive list of names and addresses at the end of this article. Expect to pay between 99p and about £2.50 per disk – there's often a discount if you buy in bulk, too.

RATING THE PROGRAMS

Just to be awkward, I use two different ratings systems. If I'm reviewing a single program, I give a 'Program rating' at the end. If, on the other hand, I'm looking at a disk full of utilities or something along those lines, you'll find a 'Value for money' rating at the end. Marks are out of 10.

UTILITIES

FILE & HD MANAGEMENT B

PD Soft disk V574

Following on from last month's review of a great utility disk from PD Soft which contained the *FileMinder* program mentioned above, I received *File & HD Management Disk B*, which contains more programs designed to ease the trials of actually using hard and floppy disks and keeping control of your files.

This disk contains four programs: *ATCopy*, *DosControl*, *PCExecute* and *PrFont*.

• AtCopy

ATCopy is a demo version of a commercial program, which "Replaces the Commodore Amiga Janus-Software-Parcel commands 'ARead' and 'AWrite'."

"DosControl wins a place on my hard disk for its archive support..."

The documentation has been translated from the German by someone whose English leaves a little to be desired, but it appears to be a program which enables files to be copied between the Amiga and an XT or AT PC emulator card. It should work on an Amiga 1000, 2000, 2500 or 3000 with such an emulator installed. Since my A500 Plus doesn't really fit those criteria, I moved swiftly along...

• DosControl

DosContol is another German program, and is (yet another) directory utility, à la *SID*.

DosControl was written by Uwe Brosch, and since the menu comes

continued on page 145

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continued from page 143

up with the message 'DosControl v3.1 – DEMO', I can only assume that it's shareware. However, it will take someone with a better grasp of the German language than me to get much further than that – all the documentation is in German, as are most of the commands on the buttons and in the menus. It's a shame, too – this program has a lot going for it. For example, buttons allow you to choose what information about a file is displayed in the standard window: date, time, size, attributes and so on. Then there are menu items which provide Amiga to PC (and vice versa) file translation – presumably removal of extraneous carriage returns and so on – and, most usefully, a menu which enables you to access your favourite archiving program from within *DosControl*. Just select the files you want to archive, choose 'Lharc Packen' from the Archive menu, choose a filename for the archive, and the program handles the rest (assuming you've got the relevant archiving program in your c: directory, of course). Archivers supported are *Zoo*, *LHArc* and *Arc*, and *DosControl* wins a place on my hard disk for this feature alone.

There are other, supposedly more sophisticated programs about which provide archiving routines with a Workbench front-end, but all I (and, I suspect, most people) want to be able to do is create, extract and list archives – no more, no less. Congratulations to Uwe for spotting the user desire and doing something about it.

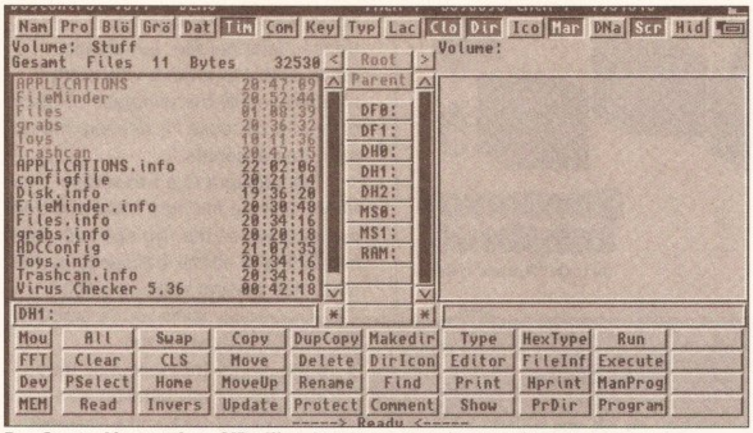
If only *DosControl* were in English, and if only it didn't (very occasionally) crash my Amiga, I'd be able to recommend it without reserve. As it is, try it out – you may be able to live with its foibles, and it's certainly easier to use than *SID*.

• *PCExecute*

Third up is *PCExecute*, by Peter Vorwerk, which apparently "allows you to send a command to an XT/AT board without opening the PC window." As with *ATCopy*, my setup doesn't include such a board, so the program's not much use to me...

• *PrFont*

Finally, *PrFont*, by Joel Swank, is a $10 shareware program which searches your Amiga for any fonts in the fonts: directory, draws a line of text in each of them and then dumps the screen to the printer. This would be useful as a reference, especially if you have got a lot of fonts installed – glancing at a printout is far easier than trying three or four fonts until you find the one you were looking for. I say would, though, because the program refused to dump anything



***DosControl* is another *SID*-alike, but has some interesting and useful new features. Simple buttons allow you to select whether files are viewed by date of creation, time of creation, file size, number of blocks used and so on. Shame it's all in German though!**

out to my Canon BJ10ex. I experimented with a couple of different drivers, but I had no joy at all. Owners of other printers may (or may not) be luckier.

All in all, this disk doesn't really live up to the standard set by Disk A, reviewed last month. However, *DosControl*'s neat features may well sway you, and there's probably something of interest here if your Amiga has a PC emulation card installed.

Value for money 6/10

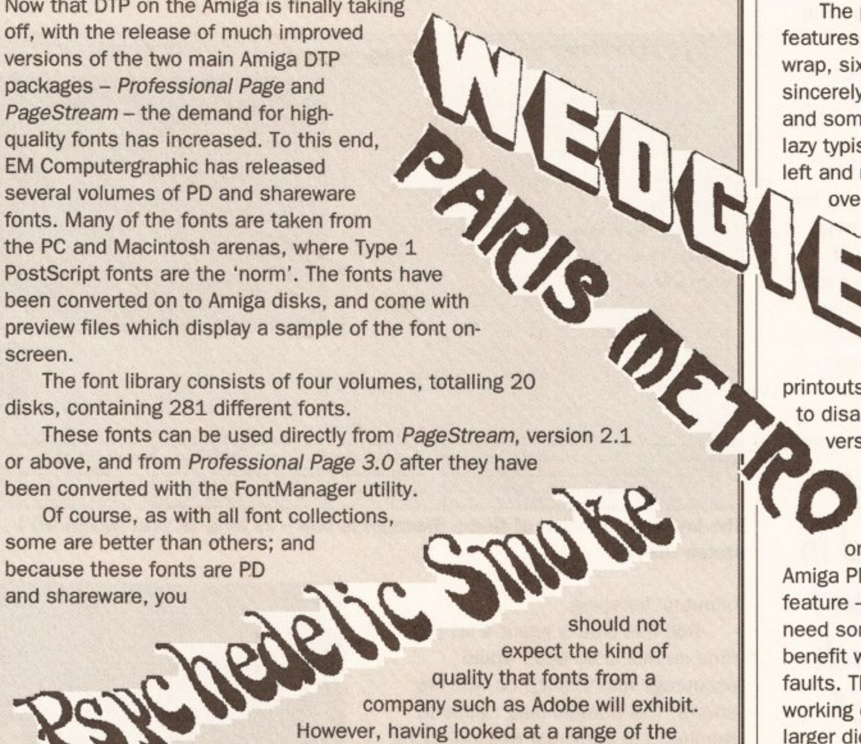
FONTS ON THE CHEAP

Now that DTP on the Amiga is finally taking off, with the release of much improved versions of the two main Amiga DTP packages – *Professional Page* and *PageStream* – the demand for high-quality fonts has increased. To this end, EM Computergraphic has released several volumes of PD and shareware fonts. Many of the fonts are taken from the PC and Macintosh arenas, where Type 1 PostScript fonts are the 'norm'. The fonts have been converted on to Amiga disks, and come with preview files which display a sample of the font on-screen.

The font library consists of four volumes, totalling 20 disks, containing 281 different fonts.

These fonts can be used directly from *PageStream*, version 2.1 or above, and from *Professional Page 3.0* after they have been converted with the FontManager utility.

Of course, as with all font collections, some are better than others; and because these fonts are PD and shareware, you should not expect the kind of quality that fonts from a company such as Adobe will exhibit. However, having looked at a range of the fonts offered, I must say that I'm quite impressed; by and large the quality is perfectly good enough for anything except top-quality publishing – and some of the fonts would stand comparison with any similar commercial versions.



Some of the fonts are PD, while others are shareware – it's up to the purchaser to check for any 'Read me' files containing details of shareware fees. However, these are clearly flagged, with conspicuous icons, so there's no excuse for ignoring them.

Shown here are screengrabs of fonts from Volume 6, disks 1 and 2 (the whole of Volume 6 contains 5 disks, and costs £12.50). For full details of available fonts, contact EM Computergraphics at 8 Edith Road, Clacton on Sea, Essex CO15 1JU; phone 0225 431389.

Value for money ...9/10

CRUISEWORD 1.2

From PD Majik
☎ 0603 628906

Cruiseword is a word processor written in AMOS by J Lucas, who requests a £7 shareware fee. Unfortunately, as it stands I can't really say that it's worth the sum asked for.

As regular readers of *Amiga Shopper* will know, we reviewed three PD or shareware word processors a couple of issues back, and sadly *Cruiseword* doesn't really measure up to any of them. Its one advantage is a built-in spelling checker, but even that is limited – there is no support for users to add words to the dictionary, so you're stuck with the one provided.

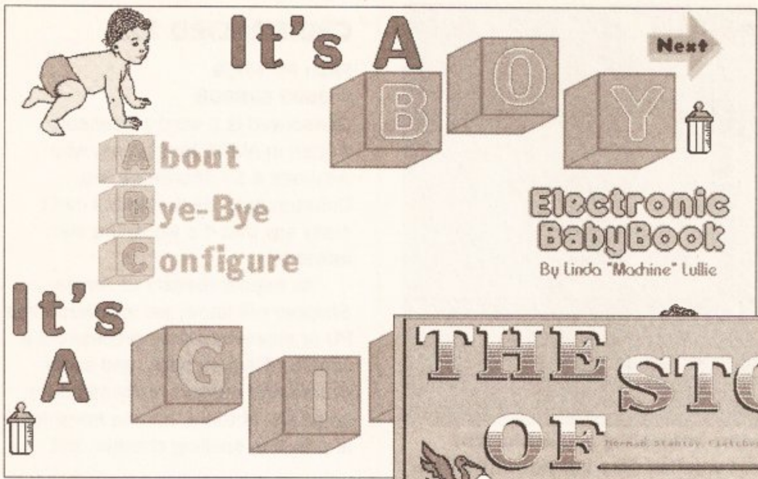
"In my test printouts, some of the text managed to disappear..."

The program has a few basic features, such as automatic word wrap, six predefined macros ("Yours sincerely", "To whom it may concern" and some others – ideal for all the lazy typists amongst you), adjustable left and right margins, insert or overtype and the ability to embolden, italicise and underline text. However, none of these features works particularly well, and indeed on my test printouts, some of the text managed to disappear from the printed version – not a good sign.

The idea of integrating a spelling checker into a word processor is a good one – it's high time more Amiga PD word processors had this feature – but *Cruiseword* really does need some more work before this benefit will outweigh the program's faults. The author claims to be working on a faster spelling checker, larger dictionary and mail merging facility. Personally, I'd rather see some basic enhancements like a Quit option (you have to re-boot the Amiga to leave the program) and an underline facility which doesn't underline the blank space at the beginning of each line.

Sorry, but this really isn't up to scratch at present. However, I look to version 1.3 (to be released later this year), when hopefully some of these complaints will have been addressed.

Program rating 4/10



This should give some idea of what the *Electronic Baby Book* is like. If you've bought a real book like this, you'll love the computerised version. But then, you probably like *Terry and June*, too…



Enter the name and vital details of your offspring, and you can blackmail them in the years to come

CLASSIX 1

Aardvark PD
☎ 0509 210157

Classix 1 is a collection of four tunes by Bach, arranged by Rob Baxter and produced using the Aegis Sonix program. The disk is auto-booting, and tunes are played by hitting one of the function keys.

Rob is obviously a bit of a Bach enthusiast, and his explanatory notes on the music, and Bach himself, are interesting and informative.

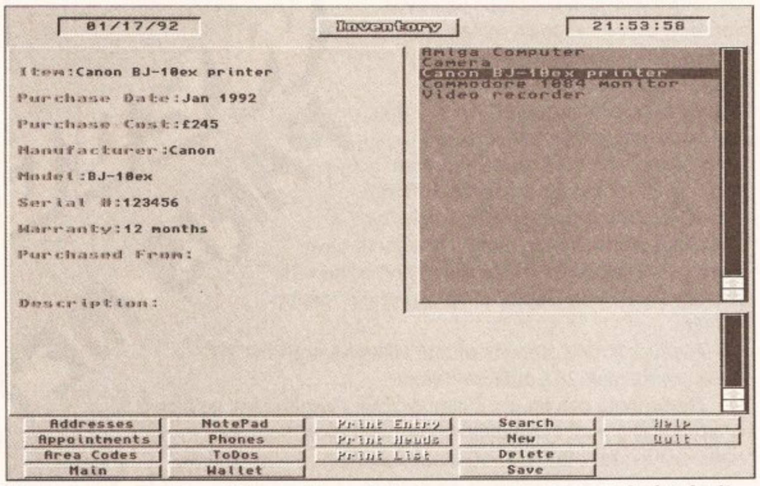
The sounds used to play the music are reasonable – the proud boast is that no digitised sounds are used – although I don't know what Bach would think about some of them. Certainly the instruments used to play the Fugue from the Toccata and Fugue in D Minor are interesting and work well, but the pipe organ sound for the Toccata is a little ropey. And talking about that particular piece, I have to say that some of the sections did seem to be played at quite exceptional speed – rather faster than was originally intended, I think!

> "No digitised sounds are used in Classix 1 – I don't know what Bach would think of them…"

The four pieces are sections of the Brandenburg Concertos numbers 3 and 4, the Prelude and Fugue number 7 and, of course, Toccata and Thing in D whatsit. Each tune takes 30 seconds or so to load, and can be interrupted by hitting the Escape key at any time. The four tunes are each fairly long, and the disk certainly represents a fair few minutes' listening.

Rob has clearly spent a lot of time on this disk, and I would encourage him to keep on with his efforts. The Brandenburg Concerto Number 3 in particular was well done – but do keep the freakier sounding instruments to a minimum, Rob!

Value for money 6/10



The inventory section of *Home Manager* is fine – as long as your Amiga isn't stolen that is!

AMICASH 1.0

PD Soft disk V630

AmiCash was written in AMOS by Keith Grant, who asks that a shareware donation be paid if you use the program. It's a basic home accounts package which the author says is for those of us who are forever losing track of how much we (don't) have in the bank. It's fairly basic, and allows only 300 transactions per file, but should prove useful to anyone who really wants to justify the purchase of their computer because "it will help me do my home accounts."

The program is a two-screen affair; clicking the right mouse button cycles between the two screens. One is a listing of all the transactions, the other has several buttons which allow you to actually enter the transactions. They are labelled with things like 'Interest', 'Direct Debit', 'Cheque deposit' and so on; click on a button and the program asks you for the date, details and amount of the transaction and then adds it to the list.

There are some things that the program won't do which reduce its usefulness. For starters, it doesn't put the transactions in date order. So if you forget a transaction until you've entered others with later dates, you're stuck with the rogue one appearing in the wrong place. And editing the transactions is a little fiddly.

On the plus side, you can print out the list just by pressing a function key, and the lack of too many features means that beginners to the Amiga won't get too confused.

All in all, *AmiCash* is a simple program, to perform a simple task. I've always thought that people who need a computer to cope with their home accounts should simplify their accounting system, but maybe that's just me.

Program rating 6/10

THE ELECTRONIC BABY BOOK

PD Soft disk V658

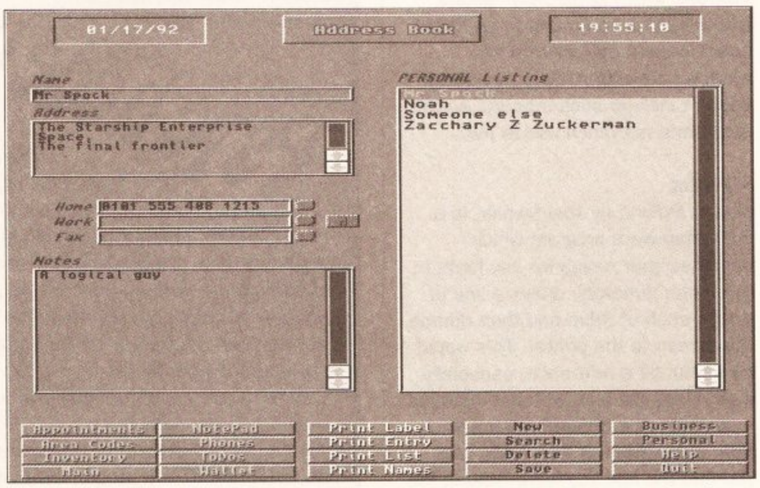
This really has to be one of the most nauseating programs I've ever come across. On the other hand, I know people who will be delighted with it – it takes recording your baby's details into the computer age.

You get some idea of what the program will be like when the opening screen appears. If you start gagging immediately, now would be a good time to switch the computer off and go to the pub. If, on the other hand, your first thought is "Aaahh. Isn't that cute?," then you should either continue through the program or seek psychiatric help.

> "If your first thought is 'Isn't that cute?' you should continue the program or seek psychiatric help."

Basically, the *Electronic Baby*

continued on page 148



Home Manager's Address Book section is as fully-featured as some stand alone address book programs, and offers about everything you might want

continued from page 146

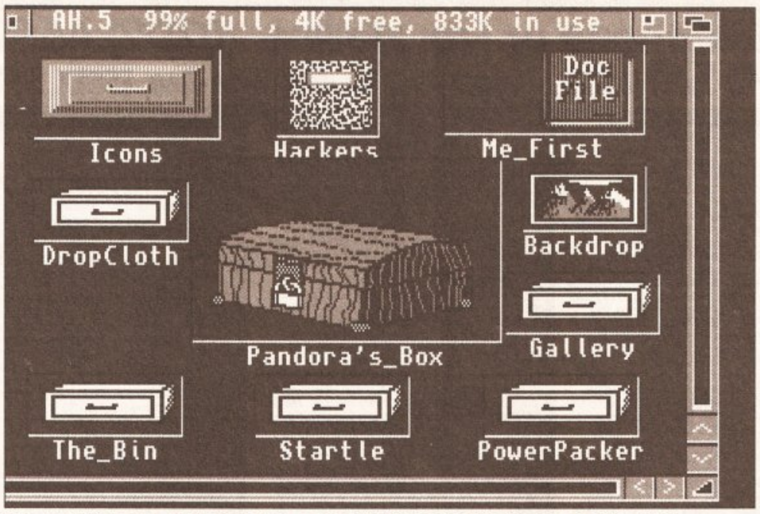
Book, which is a $10 shareware program by Linda Lullie, is a computerised version of the "record every tiny detail of your baby's development" scrapbooks sold to gullible (or sadistic) parents. Whether you're gullible or sadistic can be determined by asking yourself whether you are likely to get the book out when your offspring brings their girl/boyfriend home to dinner.

> **"Now could be a good time to switch the computer off and go to the pub..."**

The idea is that, as your sprog grows, you type in all its relevant details – date of birth, weight, name of the doctor present, when it first vomitted over the babysitter and so on. The program has a number of 'pages', ranging from 'Firsts' (smile, tooth, haircut and so on), through 'Mom's notes and medical notes' to 'Baby's first Christmas'. Details can, of course, be printed out.

If this is your kind of thing, I have to say that it's been fairly well done. Apart from an occasional difficulty in selecting a text field to type in to, the program worked well, the fonts are reasonable and the graphics are well drawn. Personally, I just think it's sad there's a market for this kind of thing. The rating depends on whether you agree or not.

Program rating 1/10
or 9/10



The Amigaholics club disk has some utilities and programs on the disk, although there isn't the variety that you find on some

HOME MANAGER 2.0

PD Soft disk V660

Home Manager is an $18 shareware program by Len Platt, who goes under the pseudonym of Lord Sutch Productions. It started out as personal database called *Home Sweet Home*, but grew as more features were added. It now has eight sections: Appointments; Personal Inventory; Address Book; Notepad; The Wallet; Area Codes; and Important Phone Numbers.

The program works in Interlace mode, although it only takes up the NTSC portion of the screen. Until you register, a small 'nagging Requester' appears at frequent intervals reminding you to register the program – this requester holds up program operation for about five seconds each time it appears, so you'll soon get sick of it.

As with the home accounts package reviewed earlier, your views on the usefulness of this program will directly reflect your opinion of whether computers are better than standard paper-and-pen methods of organising your life. Given that you think they are, though, *Home Manager* is certainly fully-featured and should keep you happy.

Taking a brief look at each of the sections to the program in turn, the first is the Address Book. This has as many features as some stand-alone programs, including the facility to print address labels, an individual entry, a list of all names or the full database. You can also search for strings in any of the fields. You can have two separate address databases, designated Business and Personal.

The Appointments module is a combined calendar/appointments diary, with the calendar on the left of the screen and an appointment book on the right. Although automatically set up with time slots at half-hourly intervals, the appointment diary can be altered at will.

Area Codes doesn't seem to be editable, but contains phone codes for a large number of countries, as well as many (if not all) American States. The American States information might not be too useful to us here in the UK, but I'm sure that someone out there will be able to make use of them.

The Inventory section of the program allows you to list and describe all your valuables – presumably for insurance purposes, in case your home is burgled. However, since the Amiga is likely to be one of the things that's taken, it's a good idea to print out the list, rather than just leave it on the computer. Fortunately, there's the facility to do just that – as well as printing a single entry or printing a list of items without any detail.

The Notepad is a basic note taker – the documentation says that it's not intended to be a fully-fledged word processor, although you can load, save and print documents from this area of the program. Phones is a list of regularly-used phone numbers, which can be dialled if you have a modem connected to your phone line. I've seen this sort of routine on just about every computer ever made, and I still wonder... does anyone actually use it?

ToDo's is the section of the program where you enter any things that you need to do (surprise, surprise). Every time you start the program, it scans to see if there's anything in the list and, if there is, lets you know.

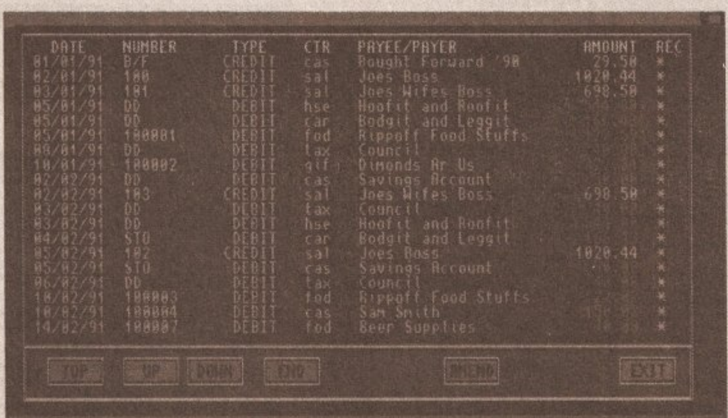
Finally, The Wallet is described in the documentation as a "credit card database with dialler". Unfortunately, it refused to run on my machine – every time I selected that module, the program just terminated and left me back in the Workbench.

Home Manager needs the fatter (1Mb) Agnus chip to run, and works in Interlaced mode – something which makes it less useful for me (and, I suspect, many people) since I don't have a flicker fixer, and staring at an interlaced screen for more than five minutes at a time gives me a dreadful headache.

It constantly amazes me that people write such high-quality software for the PD and shareware marketplace. *Home Manager* could easily be sold as a full, commercial piece of software. It looks professional, has no bugs that I could find (with the exception of The Wallet), has comprehensive on-line help and is clearly the product of a great deal of development work. I can only hope that Len keeps on writing shareware – he's already written six or seven other programs – since he's obviously very talented.

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UPDATE... UPDATE...



***FT-X Accounts* now has an improved user interface and many new features – recommended!**

You may recall that in the June issue I raved about a program called *FT-X Accounts*, by Fred Trigg. Well, Fred has been in touch with me to tell me that he's radically upgraded the program, which is now at version 2.01. It's now far faster, because he's re-written it in compiled HiSoft Basic rather than Amiga Basic, and added some features like Fixed Costs and a faster reconciliation feature.

Fred has now included a requester telling you that the version you have is unregistered, and which counts down from about 40 – in seconds – so that's a good incentive to register. The user interface has now also been improved – the whole thing is much more attractive and professional-looking.

In the June issue I said that I'd recommend *FT-X Accounts*; with the improvements that Fred has made, I'd say that this is doubly the case.

The shareware fee for the program is £20; Fred can be contacted at 25 Cecil Aldin Drive, Tilehurst, Reading, Berkshire RG3 6YP.

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If you want to learn more about your Amiga, get this pack! - You'll be a disk expert in no time! Includes Power Packer (Easy file compacter), Sid (Brilliant CLI Replacement Tool!), Iconmania (Change any Icon in seconds), Fixdisk, Viruschecker V5.3, D-Copy (Copies, Repairs, Formats and more), CLI Tutorial (All you need to know) and 202 other utilities!!!

"C" PROGRAMMERS PACK (P) 6 DISKS £5.94
A complete "C" language and superb instruction manual provide all you need to learn the "C" language, includes North C (2 disks) and the C Manual (4 disks)

MED V3.2 MUSIC PACK (P) 4 DISKS £3.96
MED is widely recognised as the best music package, PD or otherwise!! This pack contains V3.2, the latest version complete with loads of digital samples, a disk full of MED music scores and some great MED music to load and play! Listen to what your machine is capable of!

500+ CLASSIC GAMES PACK (P) 5 DISKS £4.95
An incredible collection of superb commercial quality arcade games! Hours of fun for both kids and adults. Includes: Defender, Galaxians, Scramble, Missile Command, Pac-Man, Bi-Planes, Drip!, Space Invaders, Asteroids, Breakout, Tetris + more!

CARD + BOARD GAMES 2 (P) 4 DISKS £3.96
Another outstanding collection! 38 very good "Thinking" Games!: Chess V2, Backgammon, blackbox, Towers, Pipe, Zerg, Maze, Cluedo, Connect4, Dominoes, Draughts, Othello, Go Moku, Dragon Tiles, Klondike, Canfield, Mastermind, Wordsearch, Hangman, Pontoon and many more.

Please note all pack disks may be bought singly at 99p!

SINGLE DISKS AT ONLY 99p!

BUSINESS
B321 (P) (85%) Amigafox (English Desk Top Publishing)
B322 (P) (95%) 600 Business.Letters (Superb! - Ready to use)
B330 (P) (80%) Amicash (Superb new bank account manager)
B331 (P) (92%) QED (Very good wordprocessor for beginners)
B332 (P) (90%) U-Edit V3.0A (Latest and greatest word pro)
B333 (P) (86%) Amibase Professional 2 (Now PD! - Super database)
B334 (P) Appointments (never miss one! Let your Amiga remind you)
B335 (P) (92%) Forms unlimited (Design invoices etc, quickly and easily!)
B339 (P) A-Graph (very easy to use - make bar + line graphs and pie charts!)
B327 (P) (86%) Text Engine V3 (great looking wordprocessor, easy yet powerful)
B340 ((P) (85%) BBase II V5.3. Latest Database now includes better printouts and mailing labels!
B341 (P) Phone-Plus (Store phone numbers, print address labels, good!)

UTILITIES
U413 (P) (100%) Sid v1.6 (makes you a master of CLI)
U416 (P) (70%) Cli Tutorial (Learn all about it)
U437 (P) (95%) D-Copy V2 (Now an even better disk copier!)
U471 X Copy III (PD version of commercial prog: Save £30!!)
U478 (P) Typing Tutor (New! Great features)
U494 (P) Pascal (2 disks - brilliant language)
U495 (97%) Viruschecker V6.04(P) (The latest - For the plus too!)
U496 (P) (95%) Messysid V2 (Reads and writes PC disks)
U497 (P) (95%) A500+ Utilities (For the A500+ only!)
U4004 (P) Pools Predictor (significantly improves your chances)
U4005 (P) (75%) Turbo Imploder (squeeze loads more onto a disk)
U4006 (P) Fancy disk label designer (the best around, in colour too!)
U4007 (P) (93%) Disk Optimiser (brilliantly simple! Any disk loads up to 15 times faster)
U4008 (P) Sid V2 (It's superb!!! Fully functional!)
U4009 (P) Amiga Tutorial (A beginners manual on disk, superb!)
U4010 (P) (98%) HDClick V2 + File Minder. Superb hard disk menu maker + Directory utility (NEW!)
U4011 (P) Race Rater. Horse race predictor - Good (NEW!)
U4012 (P) (92%) Magnetic Pages V1.3. Produce your own superb disk magazines (NEW!)
U4013 (P) (85%) Power logo. Full language (NEW!)
U4014 (P) Lazi. Easy to use LHarc, Arc & Zoo! (NEW!)

GAMES - (*=1MEG)
G6013 (P) Chess Tutor (improve your skill) includes a full chess game!
G6019 (P) A500+ Games (21 Games for the Plus!)
G6021 (P) (90%) Tanx (great fun! get it now - you won't be disappointed)
G6022 (P) Cluedo (100% accurate version of the board game)
G6025 (P) Monopoly (excellent American plus compatible version!)
G6027 (P) (91%) Lothian. Superb ultima type adventure - great graphics - hordes of monsters! (NEW)
G6028 (P) (95%) Defender! Almost exact arcade conversion - Brilliant!
G677 (P) (90%) Amigoids (The best Asteroids Game)
G624 (P) Blizzard (*) (PD's best shoot em up)
G689 (P) Pom Pom Gunner V2 (Latest - New levels)

CHILDRENS
C701 (P) Learn + Play (2 disks-super education for 4-10yrs)
C712 (P) Colour Pad (New colouring book for youngsters)
C713 (P) (90%) Peters Quest (Lots of fun platform game)
C714 (94%) Storyland II (Brilliant kids game)
C715 (P) Composer (simply superb music maker for 12yrs +)
C717 (P) Frogger! (frantic frog fun for under 10s)
C718 (P) (92%) Centipede (wonderful graphics, brilliant game for ages 8 to adult!)
C719 (P) (87%) Total Concepts (2 Disks) (Astronomy & Dinosaur Education Pack - Good!)
C720 (P) Colour the alphabet (Great education for early learners 4ys+)
C721 (P) Languages! (Practice French, German and Spanish!)
C724 (P) (95%) Doody. Very much like Mario Bros and very good (NEW!)

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FISH DISKS IN STOCK 350-650 ONLY 99P EACH!

DEJA-VU IN STOCK 1-85 £3.50 EACH!

PUBLIC DOMAIN SOFTWARE
ANGLIA PUBLIC DOMAIN LIBRARY
(Dept ASH), 115 Ranelagh Road, Felixstowe, Suffolk, IP11 7HU

TELEPHONE 0394 283 494

Access VISA CREDIT CARD ORDERS

International orders welcome but please add 30p per disk for post & packing.

Simply phone your order through or send a cheque/postal order. Please add 60p to cover post and packing.

continued from page 148

It's another good reason to pay your shareware fees – to keep guys like this interested.
Program rating 9/10

DISK MAGS

Please do keep your disk magazines coming in, even if I don't review yours every month. Each column from now on I'll pick out one or two that I haven't looked at for a while, so it's in your interests to make sure that I keep seeing yours!

AMIGAHOLICS NO 5

The Amigaholics disk magazine number 5 starts with some pretty reasonable music and a picture which slowly draws itself on the screen. After a while you realise that you need to hit a key to continue and, having done that a scrolling message appears with the history of the disk. Hit a key again (it would be good to be told that that's what you need to do) and you're into the program selector.

The editorial was an interesting read, as was the Letters section. Unusually for a disk magazine with a menu, only the text files were included on the menu – for access to the rest of the files, you have to exit to the Workbench.

The programs included weren't too spectacular, but the range wasn't bad. The disk I received was the February edition (why I didn't get a later one I don't know), but I'm assured that the magazine is going from strength to strength.

Amigaholics can be contacted at 29 Wolfe Crescent, Charlton, London SE7 8TS.
Value for money 5/10

DREAMERS

Dreamers is unusual for a disk magazine in that its front-end was written in AMOS (of course, as usual that means that I can't screengrab the bloody thing!). The presentation is very elegant, with text scrolling in the middle third of the screen, the magazine's logo at the top and icons for the different subjects at the bottom.

Much of the disk is taken up with text files, and the editorial content certainly seems up to scratch. There are reviews of 3D drawing packages, tips on drawing techniques for popular programs such as *Deluxe Paint*, a review of a DTP package, a discussion of memory expansions along with reviews of a few units, games reviews, news and so on. There is also a 'picture of the month'. Unfortunately, there's not much (if anything) in the way of PD software on the disk, so be aware that you're paying mainly for editorial. However, in future there will be two disks – each costing £2, or both for £3 – one of which will be the mag, while the other carries a selection of PD.

Dreamers issue 3 has been made public domain so that people can see what it's like; normally the disks will cost £2. Issue 3 was supplied to us by PD Soft – it's disk number 2425. Or, if you want to get the latest issue, send a cheque for £2 (or £3 for both the mag and its associated collection of PD software) to Paul Harthen, 43 Boyds Walk, Dukinfield, Cheshire SK16 4AX.
Value for money 6/10

NEXT MONTH • NEXT MONTH • NEXT MONTH

Next month I will, as always, be seeking out the best software to review. If you've got a particular subject that you want me to cover, or if you've come across a good piece of PD or shareware that you think deserves a mention, drop me a line here at PD World, Amiga Shopper, Future Publishing, 30 Monmouth Street, Bath BA1 2BW. Or you can contact me on CIX as 'iwrigley', or on the Internet as 'iwrigley@cix.compulink.co.uk'.

UK PD HOUSES

3 Amigos
16 Marsett Way
Leeds LS14 2DN
☎ 0532 733043

Amiganuts United
169 Dale Valley Road
Hollybrook
Southampton SQ1 6QX

AMOS PD Library (also Deja Vu)
25 Park Road
Wigan WN6 7AA
☎ 0942 495261

Anglia PDL
115 Ranelagh
Felixtowe
Suffolk IP11 7HU
☎ 0394 283494

Blitterchips
Cliffe House
Primrose Street
Keighley BD21 4NN
☎ 0535 667469

CLS
PO Box 7
Bletchley
Milton Keynes, MK2 3YL
☎ 0908 640763

Crazy Joe's
145 Effingham Street
Rotherham
South Yorks S65 1BL
☎ 0709 829286

Deltrax PD
36 Bodelwyddan Ave
Old Colwyn
Clwyd LL29 9NP
☎ 0492 515981

Digitz
PO Box 144, Mexborough
South Yorks S64 9SL
☎ 0709 571748

EdLib
Scotland Farm, Stockwood Road
Brislington
Bristol BS4 5LU
☎ 0272 723489

EMPDL
54 Watnall Road
Hucknall
Nottingham NG15 7LE
☎ 0602 630071

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Basildon
Essex SS16 4JA
☎ 0268 553963

George Thompson Services
Cucumber Hall Farm,
Cucumber Lane
Essendon
Herts AL9 6JB
☎ 0707 664 654

Goldstar Computers
PO Box 2
Tyldesley
Manchester M29 7BN
☎ 0942 895320

ICPUG
PO BOX 1309
London N3 2UT
☎ 081-346 0050

Kernow Software PD Library
51 Ennors Road
Newquay, Cornwall

NBS
1 Chain Lane, Newport
Isle Of Wight PO30 5QA
☎ 0983 529594

Neural Images
4 Flint Walk, Hartlepool
Cleveland TS26 OTE
☎ 0492 263508

Office Choice (OC-PD)
30 Town St, Kirkintilloch
Glasgow G66 1NL
☎ 0236 737901

PD Soft
1 Bryant Ave, Southend-On-Sea
Essex SS1 2YD
☎ 0702 612259

Pentire PD
10a Hag Hill Lane, Taplow
Maidenhead, Berks SL6 0JH
☎ 0628 666641

Public Dominator
PO BOX 801, Bishop's Stortford
Herts CM23 3TZ
☎ 0279 757692

Riverdene PDL
30a School Road
Tilehurst, Reading
Berkshire RG3 5AN
☎ 0734 452416

Telescan Computer Services
Handsworth Road
Blackpool FY5 1SB
☎ 0253 22296

Sector 16
160 Hollow Way, Cowley, Oxford
☎ 0865 774472

Seventeen Bit Software
PO BOX 97, Wakefield
West Yorks WF1 1XX
☎ 0924 366982

Software Expressions
Hebron House, Sion Road
Bedminster
Bristol BS3 3BD
☎ 0272 637634

Softville
Unit 5, Stratfield Park
Elettra Avenue,
Waterlooville
Hants
PO7 7XN
☎ 0705 266509

Start Computer Systems
Barbican House
Bonnersfield
Sunderland, SR6 0AA
☎ 091 564 1400

Startronics
4 Arnold Drive, Droylsden
Manchester M35 6RE
☎ 061 370 9115

Unique Computing
114 Salters Road, Gosforth
Newcastle on Tyne, NE3 3UP
☎ 091-284 7976

Vally PD
PO BOX 15, Peterlee
Co Durham SR8 1NZ
☎ 091-587 1195

Wirral PD
PO Box 4, Birkenhead
Merseyside L43 4FW
☎ 051 651 0646

BUYING ADVICE FOR SHOPPERS

Whether buying over the phone or at a local store, here's our advice on how to get what you want

BUYING IN PERSON

- Where possible, always test any software and hardware in the shop before taking it home, to make sure that it works properly.
- Make sure you have all the necessary leads, manuals or other accessories you need.
- Don't forget to keep your receipt.

BUYING BY PHONE

- Be as clear as possible when stating what you want to buy. Make sure you confirm all the technical details of what you are buying. Some things to bear in mind are version numbers, memory requirements, other required hardware or software and compatibility with your particular model of Amiga (that is, make sure you know which version of Kickstart you have).
- Check the price you are asked to pay, and make sure that it's the same as the price advertised.
- Check that what you are ordering is actually in stock.
- Check when and how the article will be delivered, and that any extra charges are as stated on the advert.
- Make a note of the date and time when you order the product.

BUYING BY POST

As with buying by phone, you should clearly state exactly what it is you are buying, at what price (refer to the magazine, page and issue number where it's advertised) and give any relevant information about your system set-up where necessary. You should also make sure you keep copies of all correspondence both to and from the company concerned.

MAKING RETURNS

Whichever method you buy by, you are entitled to return a product if it fails to meet any one of the following three criteria:

- The goods must be of 'merchantable quality'.
- The goods must be 'as described'.
- The goods must be fit for the purpose for which they were sold.

If they fail to satisfy any or all of the criteria, then you are then entitled to:

- Return them for a refund.
- Receive compensation for part of the value.
- Get a replacement or free repair.

When returning anything, ensure that you have proof of purchase and that you return the item as soon as possible after receiving it. For this reason it is important that you check the hardware or software as soon as it is delivered to make sure everything you ordered is there and works as it is supposed to.

HOW TO PAY

Paying by credit card is the most sensible way, whether buying in person, by post or on the phone, because you may be able to claim the money from the credit card company even if the firm you ordered from has gone bust or refuses to help sort out your problem.

Otherwise, you should pay by crossed cheque or postal order – never send coins or notes through the mail.

GETTING REPAIRS

Always check the conditions of the guarantee, and servicing and replacement policy, so that you know what level of support to expect. Always fill in and return warranty cards as soon as possible, and make sure that you are aware of all the conditions contained in the guarantee.

BUYING PD

Even though PD software is relatively inexpensive, you should still apply the guidelines set out above, making sure that you confirm all orders as clearly as possible.

Shopping around is still important when buying PD because different houses charge different prices for the same disks. There is no set pricing structure for disks, but bear in mind that PD houses are, in theory, supposed to be non-profit making operations. AS

A CHECK LIST FOR MAIL ORDER BUYING

1 **Make sure you know exactly what you want. Draw up a checklist of the specifications you are looking for and what you want it to be able to do. Check with the suppliers that their product matches your list**

2 **Will the product you have in mind work with your existing set-up, and anything else you are planning to buy?**

3 **Can you see a demonstration? Many products are on display at computer shows around the country.**

4 **Are there any hidden extras? Does it need 1Mb to run, or a hard disk?**

5 **What technical support is provided by the supplier? Does the manufacturer offer after-sales advice? Check before you buy.**

6 **Check the guarantee terms. How long is the free warranty? What does it offer?**

7 **Draw up a list of these details and make them a condition of your order.**

8 **Check the price and delivery details when you order, and make a note of them.**

9 **Note down when you placed the order and who you spoke to.**

10 **When it arrives, check everything carefully. If anything is missing, don't use the product at all – contact the supplier. If it doesn't work, make the obvious checks such as the fuse. If it still doesn't work don't try to fix it – contact the supplier.**

ADVERTISERS INDEX

PRODUCTS

PRODUCT LOCATOR

HARDWARE • HARDWARE • HARDWARE • HARDWARE • HARDWARE • HARDWARE • HARDWARE • HARDWARE

Welcome to the *Amiga Shopper* Buyer's Guide, your regular guide to what's hot and what's not in the Amiga market place. It's designed as a simple-to-use yet comprehensive guide which will help you to make the right buying decisions. It may not include each and every product ever produced for the Amiga (that would take up virtually the whole of *Amiga Shopper*!), but you can rest assured that all major brands and models are here.

The Buyer's Guide will run each and every month and as new products are released and others discontinued, we'll be updating it accordingly. This month we bring you what is possibly the most comprehensive guide to hardware for the Amiga owner. Next month we'll be listing Amiga software...

AMIGAS

Model	Price	Memory	Total Chip	Total Fast	Processor	Speed (MHz)	Hard Disk (Mb)	Floppies	Comment
A600	£399	1 Mb	2Mb	4Mb	68000	7	No	1x880k	Replacement for no discontinued A500Plus
A600HD	£499	1 Mb	2Mb	4Mb	68000	7	20	1x880k	A600 with built-in 20 Mb IDE
A1500	£999	1 Mb	1 Mb	9 Mb	68000	7	No	2x880k	More expandable than A500
A2000HD	£1299	1 Mb	1 Mb	9 Mb	68000	7	40	1x880k	Exactly the same as A1500, but now includes hard disk
A2500	£????	1 Mb	1 Mb	9 Mb	68020	16	40	1x880k	Same as A2000HD, but comes with processor card
A3000	£3160	2 Mb	2 Mb	16 Mb	68030	16/25	50/100	1x880k	Available in several hard disk/processor configurations

Note: A500 and A1500 now denote 2.0-based machines. A2500 only available in the US.

HARD DRIVES

Model	Supplier	Price	Machine	Capacity (Mb)	RAM Expansion	Rating	Issue
RocHard	Zye Technology	£379	A500	52	8 Mb	****	13
Impact II+	Silica	£399	A500	50/110	8 Mb	*****	1,2,8,13
A590	Commodore	£399	A500	20	2 Mb	***	1,2,8,13
DataFlyer500	Trilogic	£350	A500	48	-	**	1,2,8,13
500XP	Surface UK	£489	A500	40	2/8 Mb	****	1,2,8,13
FastTrak	Third Coast	£599	A500	40	-	***	8
Novia 30i	Power Computing	£399	A500	20/30	-	***	8
Prima	Power Computing	£499	A500	50/100	-	****	8
Trumpcard	Third Coast	£399	A500	40	-	***	8
Protar HD	Protar	£299	A500	20	8 Mb	****	-
Impact IIHC+8	Silica	£299	A1500→	40-300	8 Mb	****	1,2,13
DataFlyer2000	Trilogic	£350	A1500→	48	-	***	1,2
WordSync2000	Surface UK	£450	A1500→	52	-	****	1,13
A2091-40	Commodore	£200	A1500→	40	-	**	8,13
Nexus HC	Power Computing	£350	A1500→	40	8 Mb	****	8,13
SysQuest	Omega Projects	£690	SCSI	88	-	****	8
OpticalDrive	Power Computing	£1199	SCSI	128	-	****	-
TapeStreamer	Omega Projects	£600	SCSI	150	-	*****	-

NOTE: Trumpcard can be used on both A500 and A1500+

EXTERNAL DRIVES

Model	Supplier	Price	Machine	Size	Capacity	Disable Switch	Rating	Issue
PC880B	Power Computing	£55	Any	3 1/2"	880K	Yes	*****	8
RF332C	Silica Systems	£60	Any	3 1/2"	880K	Yes	****	0,1,2,8
RF542C	Silica Systems	£80	Any	5 1/4"	880K	Yes	****	0,1,2,8
A1011	Commodore	£100	Any	3 1/2"	880K	No	***	0,1,2,8
Zydec	Evesham Micros	£55	Any	3 1/2"	880K	Yes	***	8
CAX354	Cumana	£75	Any	3 1/2"	880K	Yes	****	0,1,2,8
3A-1D	Golden Image	£65	Any	3 1/2"	880K	Yes	****	0,8
AEHD	Applied Engineering	£140	Any	3 1/2"	1.52 Mb	No	*****	8
Internal2000	Power Computing	£50	A1500→	3 1/2"	880K	No	****	8
DualDrive	Power Computing	£120	Any	3 1/2"	2x880K	Yes	****	0,1,2,8
Floptical Disk	Digital Micronics	£650	Any	3 1/2"	20 Mb	Yes	*****	8

NOTE: PC880B comes with built-in disk copier. Floptical Disk not yet available in UK.

RAM EXPANSIONS

Model	Supplier	Price	Machine	Size	Max Size	Power Supply?	Fitting	Rating	Issue
500RX	Surface UK	£198	A500	2 Mb	8 Mb	Optional	Expansion Bus	*****	5
ProRAM Plus	Datel	£25	A500	512k	-	-	TrapDoor	***	8
RAM-Master 2	Datel	£100	A500	1.5 Mb	-	-	TrapDoor	***	-
V2000	Virgo	£104	A500	2 Mb	-	-	TrapDoor	*****	-
Zydec1.5	Zydec	£79	A500	1.5 Mb	-	-	TrapDoor	****	-
BaseBoard	EPD	£300	A500	4 Mb	-	-	TrapDoor	****	-
Ashcom512k	Ashcom	£35	A500	512k	-	-	TrapDoor	****	8
Ashcom1.8Mb	Ashcom	£155	A500	1.8 Mb	-	-	TrapDoor	****	-
Cortex2	Cortex	£199	A500	2 Mb	8 Mb	Yes	Expansion Bus	*****	8
GVP Series2	Silica	£159	A1500→	2 Mb	8 Mb	-	Card	*****	-
A2058	Commodore	£159	A1500→	2 Mb	8 Mb	-	Card	****	8
AdRAM2000	Power Computing	£179	A1500→	2 Mb	8 Mb	-	Card	****	8
Cortex2000	Cortex	£175	A1500→	2 Mb	8 Mb	-	Card	*****	8

PROCESSOR ACCELERATORS

Model	Supplier	Price	Machine	Processor	Speed	Max 32-bit RAM	Maths Co-pro	Rating	Issue
38 Special	Omega Projects	£850	Any	68030	38 MHz	8 Mb	68881	****	13
40/4 Magnum	Omega Projects	£NA	A1500→	68040	28 MHz	16 Mb	68882	*****	13
Zeus	Power Computing	£1449	A1500→	68040	28 MHz	64 Mb	68882	*****	14
040/500	Power Computing	£725	A500	68040	28 MHz	8 Mb	68882	*****	14
040/500i	Power Computing	£NA	A500	68040	28 MHz	16 Mb	-	****	14
Mercury	Power Computing	£1249	A3000	68040	28 MHz	32 Mb	68882	*****	14
G-Force	Silica	£599	A1500	68030	25 MHz	16 Mb	68881	****	15
Turbo68000	Bytes&Pieces	£45	A500	68000-16	16 MHz	-	No	**	-
AdSpeed	Silica	£173	A500	68000-16	16 MHz	-	No	****	3,5
VXL-30	ZCL Ltd	£409	A500	68030	25 MHz	8 Mb	Yes	****	-
2000/40	Marcam	£1937	A1500→	68040	50 MHz	32 Mb	Yes	*****	-
A3001	Silica	£1799	A1500→	68030	50 MHz	32 Mb	Yes	*****	3,5
G-Force	Silica	£1999	A3000	68040	28 MHz	-	-	*****	-
FusionForty	Power Computing	£1999	A1500→	68040	50 MHz	32 Mb	Yes	****	-
CSA MegaMidget	Bytes&Pieces	£389	A500	68030	33 MHz	8 Mb	Yes	****	3,5
A5000-16	Solid State	£295	A500	68020	16 MHz	4 Mb	Yes	*****	-
B5000-25	Solid State	£595	A500	68020	25 MHz	16 Mb	Yes	****	3,5
B5000-40	Solid State	£1162	A1500→	68030	40 MHz	32 Mb	Yes	*****	-
Harms Pro30	Bytes&Pieces	£1099	A1500→	68030	28 MHz	4 Mb	Yes	***	3,5
A2630	Commodore	£1200	A1500→	68030	25 MHz	4 Mb	Yes	****	-

NOTE: Although some 68030 cards appear to run faster than their '040 equivalents, this may not necessarily be the case. All '040 cards will run faster internally.

SCANNERS

Model	Supplier	Price	Machine	Type	Colour	Resolution	Rating	Issue
DaataScan 2GS	Pandaal	£125	Any	Hand Held	No	400dpi	***	14
Power Scanner 2	Power Computing	£99	Any	Hand Held	No	400dpi	*****	14
AlfaScan	Golden Image	£199	Any	Hand Held	No	400dpi	*****	14
Handy Scanner	Pandaal	£140	Any	Hand Held	No	400dpi	***	14
Sharp JX-100	Silica	£695	Any	Hand Held	Yes	200dpi	*****	-

PRODUCT LOCATOR

PRODUCT LOCATOR

GeniScan	Datel	£130	Any	Hand Held	No	400dpi	***	-
GoldenImage	GoldenImage	£150	Any	Hand Held	No	400dpi	*****	5
Sharp JX-300	Silica	£3600	Any	FlatBed	Yes	300dpi	*****	-
Pandaal Scanner	Pandaal	£180	Any	Hand Held	No	400dpi	****	3
PowerScanner	Power Computing	£99	Any	Hand Held	No	400dpi	***	11

DIGITISERS

Model	Supplier	Price	Realtime	Colour	Realtime Colour	Animation	Rating	Issue
DigiView 4	Silica	£150	No	Yes	No	No	****	-
ColourPic	JCL	£399	Yes	Yes	Yes	No	****	2
VIDIAmiga	Rombo	£130	Yes	Yes	No	Yes	****	5
Videon	Power Computing	£200	No	Yes	No	No	***	-
FrameGrabber	Marcam	£599	Yes	Yes	Yes	Yes	*****	-
VideoDigitiser	Datel	£80	Yes	Yes	No	No	****	-

SOUND SAMPLERS

Model	Supplier	Price	Stereo	Volume Adjust	Resolution	Rating	Issue
StereoMaster	MicroDeal	£40	Yes	Yes	8-bit	****	11
TechnoSound	New Dimensions	£35	Yes	No	8-bit	****	5
Audio Engineer	HB Marketing	£199	Yes	Yes	8-bit	*****	5
Perfect Sound 3	HB Marketing	£60	Yes	Yes	8-bit	***	10
SampleStudio 2	Datel	£70	Yes	No	8-bit	**	-
Sound Master	HB Marketing	£130	Yes	Yes	8-bit	*****	-
MicroSampler	Datel	£25	Yes	No	8-bit	*	-
SoundTrap 3	Omega Projects	£30	No	No	8-bit	****	3
AMAS 2	MicroDeal	£100	Yes	Yes	8-bit	****	-
StereoSampler2	Trilogic	£40	Yes	Yes	8-bit	****	-
GVP DSS	Silica	£60	Yes	Yes	8-bit	****	3
AD1012	HB Marketing	£TBA	Yes	Yes	12-bit	*****	-
AD1016	HB Marketing	£TBA	Yes	Yes	16-bit	*****	-
Audition 4	HB Marketing	£49	Yes	Yes	8-bit	****	10
Audio Sculpture	SMG	£49	Yes	Yes	8-bit	**	12

NOTE: AD1012 and AD1016 are for A1500→ only

GENLOCKS

Model	Supplier	Price	Fade	Dissolve	S-VHS	RGB Pass thru	Rating	Issue
MicroGen	Power Computing	£199	Yes	Yes	No	Yes	****	-
MiniGen	ASAP	£99	No	No	No	No	**	-
RocGen	Silica	£117	Yes	Yes	No	No	****	8
RocGen+	Silica	£199	Yes	Yes	No	Yes	****	10
A8802	Marcam	£200	No	No	No	Yes	***	-
A8802S-VHS	Marcam	£600	Yes	Yes	Yes	Yes	***	10
A8806	Marcam	£900	Yes	Yes	Yes	Yes	*****	-
GST Gold	Third Coast	£550	Yes	Yes	Yes	Yes	****	-
VideoCentre2	G2	£1170	Yes	Yes	Yes	Yes	****	-
VideoCentre3	G2	£1999	Yes	Yes	Yes	Yes	****	-
VideoMaster VM-2	Power Computing	£799	Yes	Yes	Yes	Yes	****	7
Videocomp G-100	Silica	£1800	Yes	Yes	Yes	Yes	***	1
ImageMaster	Neriki	£1150	Yes	Yes	Yes	Yes	*****	3
ProGen	Gordon Harwood	£130	No	No	No	Yes	***	-

MICE

Model	Supplier	Price	Ergonomics	Resolution	Rating	Issue
CBM Mouse	Commodore	£35	***	***	***	-
Naksha	Naksha UK	£28	*****	*****	*****	-
Optical	Golden Image	£52	****	*****	*****	-
Opto-Mechanical	Golden Image	£26	*****	***	****	-
Beetle	Gasteiner	£30	****	****	****	-
TrueMouse	Evesham Micros	£18	****	***	***	2
Daatamouse	Pandaal	£40	*****	****	****	1
LogiMouse	Logitech	£27	***	****	****	-

COLOUR CARDS

Model	Supplier	Machine	Price	Type	Colour Palette	Max Resolution	Rating	Issue
Rembrandt	Power Computing	A1500→	£1499	24-bit	24-bit	1024x1024	****	13
AVideo 12	Checkmate	A1500→	£299	12-bit	12-bit	768x580	***	13
AVideo 24	Checkmate	A1500→	£599	24-bit	24-bit	768x580	****	15
HAM-E	Checkmate	A500	£299	Pseudo	24-bit	368x580	*****	8
DCTV	Silica	A500	£499	Pseudo	24-bit	368x580	****	12
GVP IV-24	Silica	A1500→	£1799	24-bit	24-bit	910x576	****	12
Harlequin	ACS	A1500→	£1400	24-bit	24-bit	910x576	*****	11

NOTE: A500 devices can be used on all Amigas

TOUCH TABLETS

Model	Supplier	Price	Size	Resolution	Rating	Issue
Podstat PT-3030	HB Marketing	£179	9x12"	*****	*****	-
Genitizer	Datel	£130	9x6"	****	****	-
Cherry Mk4	Cherry	£450	9x12"	*****	***	-

DOT-MATRIX PRINTERS

Model	Supplier	Price	Pins	Speed(CPS)	Fonts	Buffer	Rating	Issue
P20	NEC	£351	24	115	8	8K	****	4
L24d	Citizen	£292	24	109	3	8K	****	4
Swift 9	Citizen	£280	9	121	3	8K	*****	4
Swift 24	Citizen	£428	24	121	5	8K	****	4
LX850	Epson	£269	9/24	106	3	4K	***	4
LQ400	Epson	£269	24	121	3	8K	****	4
LQ550	Epson	£375	9	109	4	8K	***	4
LC200	Star	£304	24	91	4	16K	****	4
LC24	Star	£304	24	130	5	16K	****	4
ML380	Oki	£386	24	127	3	8K	****	4

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ACS	031 557 4242
App.Engineering	0101 214 241 6060
ASAP	0724280222
Ashcom	0530 411485
Bytes & Pieces	0253 734218
Checkmate Digital Ltd	071 923 0658
Citizen	0895 72621
Commodore	0628 770088
Cortex	051 236 0480
Cumana	0483 503121
Datel Electronics	0782 744707
Digital Micronics	0101 619 431 8301
EPD	0602 841640
Epson	0442 61144
Evesham Micros	0386 765500
G2 Video Systems	0252 737151
Gasteiner	081 365 1151
Golden Image	081 518 7373
Gordon Harwood	0773 836781
HB Marketing	0753 686000
JCL Business Systems	0892 518181
Marcam Ltd	081 941 6117
MicroDeal	0726 68020
Naksha UK	0925 56398
NEC	081 993 9831
Neriki	081 900 1866
New Dimensions	0291 690933
Oki	0753 31292
Omega Projects	0925 763946
Pandaal Marketing	0234 855666
Power Computing	0234 273000
Protar	0923 54133
Rombo	0506 414631
Silica Systems	081 309 1111
SMG	0274 562999
Solid State Leisure	0933 650677
Star	0494 471111
Surface UK	081 566 6677
Third Coast Technologies	0257472444
Trilogic	0274 678062
Virgo	0276 676308
WTS Electronics	0582 491949
ZCL Ltd	0543 251275

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Bath BA1 2DL

The closing date is August 7. Remember that only one entry per household will be permitted. AS

THE CHALLENGE

QUESTION 1

What was the predecessor of AMOS, written for the ST, called?

a) AMST
b) STOS
c) There wasn't one

QUESTION 2

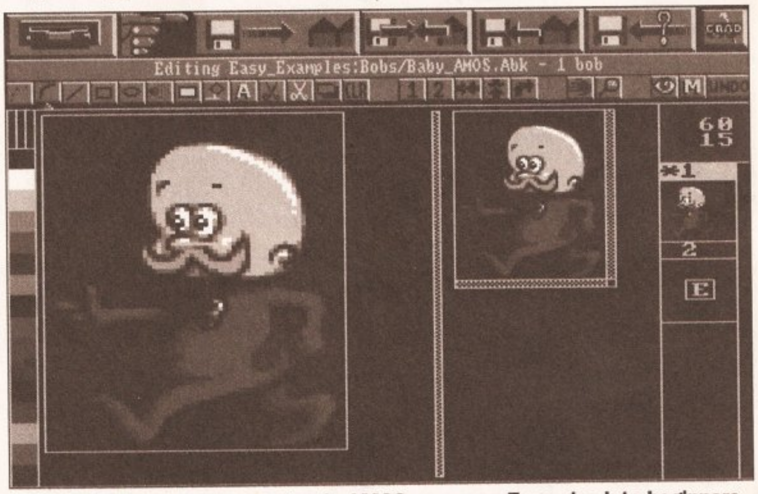
What word would a French person use to describe something as 'easy'?

a) Très bien
b) Simplistique
c) Facile

QUESTION 3

What is the name of the creator of the AMOS package?

a) Françoise Lionet
b) François Lionet
c) François Pascal



***Easy AMOS* makes programming in AMOS, er, easy. Even absolute beginners will be messing about with sprites and scrolling screens in no time at all**

PRINTER PALAVER!

The *Amiga Shopper* editorial team are proud to announce the winner of the June competition: P Hughes of Liverpool, who will be receiving a Citizen Swift 24e printer with colour kit kindly donated by Citizen Europe.

CALLING ALL GFA BASIC WINNERS

(or, it's the *Amiga Shopper, You're fired – Ed, admin cock-up corner*)
If you were one of our GFA Basic winners, could you please get in touch with your full names and addresses as soon as possible.

IN NEXT MONTH'S ISSUE

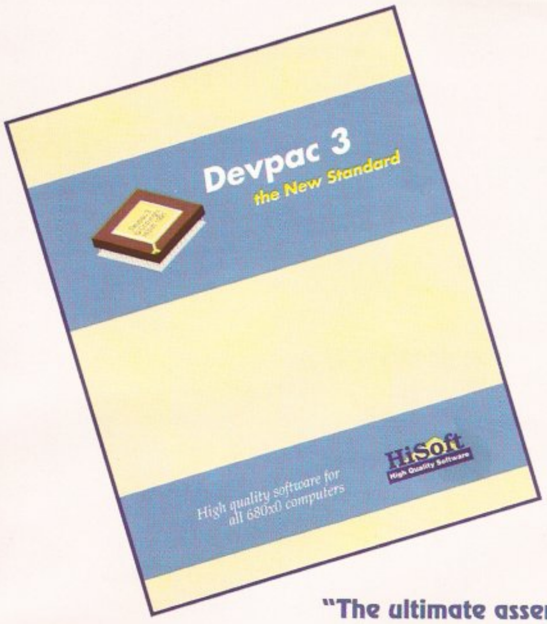
● *Amiga Shopper's* definitive desktop publishing round-up. We review all of the main contenders for the position of best DTP package.

● Continuing in the DTP vein, Jeff Walker starts a new series on just what it's all about and tells you how to get the best results, while Cliff Ramshaw takes a look at Epson's new 24-bit colour scanner and a laser printer from Star for the Amiga power user.

● Jason Holborn gamely tries out *Visionary*, the adventure authoring system from Oxxi.

Plus regular columns on Amiga Answers, video, AmigaDOS, education and much more

On sale Thursday, August 6

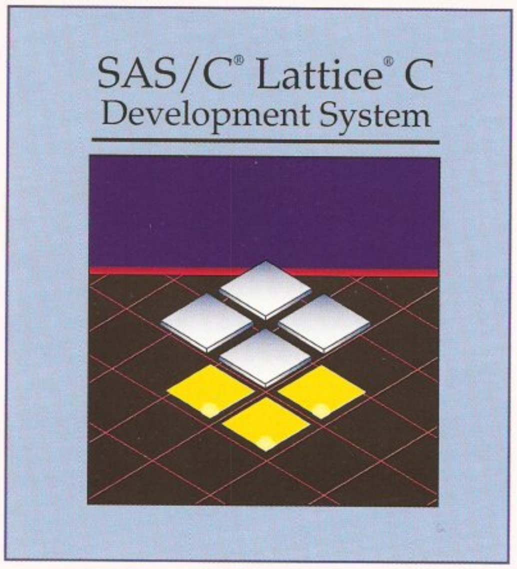


Some reasons to be cheerful

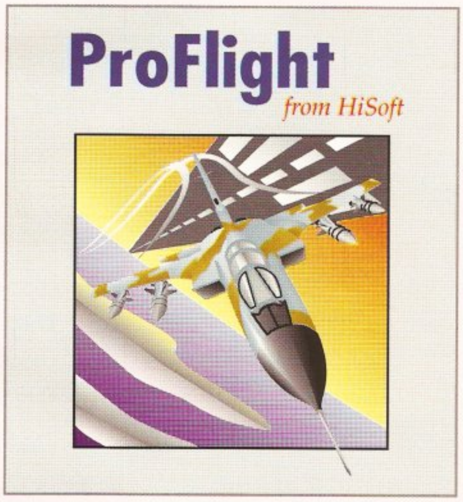
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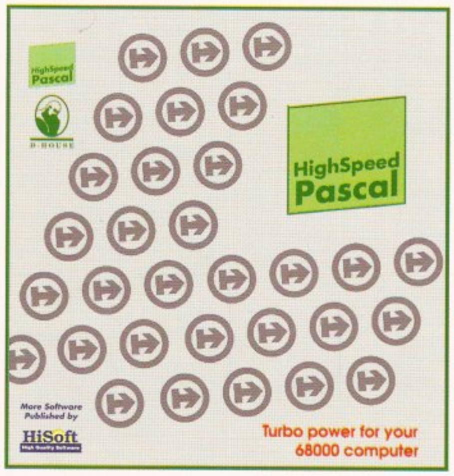
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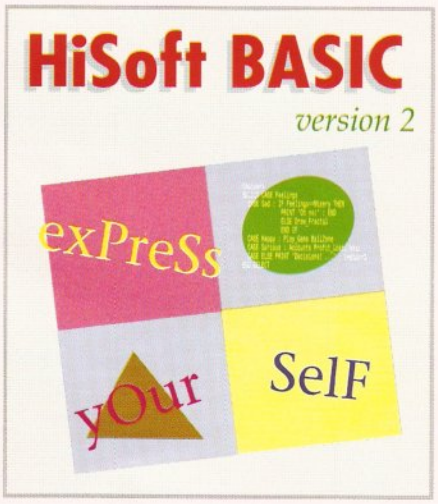
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